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August 1, 1995

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Ms. Susan Pastor
Community Relations Coordinator
Office of Public Affairs (P-19J)
USEPA, Region V
77 West Jackson Boulevard
Chicago, IL 60604

RE: **NL Industries/Taracorp Superfund Site, Granite City, Illinois**

Supplement to the Administrative Record

Dear Ms. Pastor:

These documents are submitted for inclusion in the Administrative Record for the NL Industries/Taracorp Superfund Site in Granite City, Illinois by AlliedSignal, Inc., AT&T Corp., Exide Corporation, Gould, Inc., Johnson Controls, Inc., and NL Industries, Inc. The following documents are attached to this letter as a supplement to the Administrative Record:

1. 4/19/95 SUPERFUND REPORT, "House Letter on EPA Lead-in-Soil Policy".

2. 5/18/95 U.S. EPA letter from Elliott P. Laws to Representative Billey forwarding, "Response to Issues Raised by the Subcommittee on Commerce, Trade and Hazardous Materials in March 30, 1995 Letter".

3. Testimony of Craig A. Tarpoff before the Subcommittee on Commerce, Trade, and Hazardous Materials on May 23, 1995.

4. 5/24/95 Granite City Journal, "Tarpoff tells Congress EPA lead policies faulty".

90-11-3-608A

5. 5/24/95 BNA, "EPA Offers Draft of Long-Awaited Study on Lead to House Superfund Subcommittee".

SS-141352.1

AUG -4,1995

6. Testimony of Craig A. Tarpoff before the Subcommittee on Commerce, Trade, and Hazardous Materials on June 21, 1995.

7. 6/21/95 Granite City Journal, "Tarpoff: EPA policies harmful".

8. 4/4/95 PEDIATRICS, " Survey of Lead Exposure Around a Closed Lead Smelter", by R. Kimbrough, M. LeVois, D. Webb.

9. 5/23/95 Statement of Timothy Fields, Jr. Deputy Assistant Administrator, Office of Solid Waste and Emergency Response U.S.EPA, Before the Committee on Commerce, Subcommittee on Commerce, Trade and Hazardous Materials U.S. House of Representatives.

Very truly yours,

By _____
Louis F. Bonacorsi

By _____
Joseph G. Nassif

By _____
Dennis Reis

/cal

Enclosures

cc: John Grady

Certified No. P724823919

15.0 to 3.6 micrograms per deciliter between 1976 and 1991. During the same period, the mean blood lead level in the overall population dropped 78 percent from 12.8 to 2.8 micrograms per deciliter, the letter says.

House Letter on EPA Lead-in-Soil Policy

The Honorable Carol Browner
Administrator
U.S. Environmental Protection Agency
401 M Street, S.W.
Washington, D.C. 20460

March 30, 1995

Dear Administrator Browner:

During the Subcommittee on Commerce, Trade and Hazardous Materials Superfund hearing on March 16, 1995 you were asked questions concerning the Environmental Protection Agency's lead in soil policy as it relates to Superfund cleanups. We were distributed to learn that a final integrated technical report has not been completed for EPA's $15 million "Three City Lead Study" which was initiated in 1987, and that the data used to prepare a July 1993 draft integrated report has not been made available to interested parties. Furthermore, we are concerned generally with EPA's Superfund lead in soil policy. Based on current remedy selection policies, EPA often seems to prefer soil removal down to artificially low levels (e.g., 500 parts per million to 1000 parts per million (ppm)) as a cleanup remedy at sites involving lead in soils. As you know, lead is a contaminant at more than one-third of listed Superfund sites. A number of these sites are considered large by Superfund standards and therefore involve millions of cubic yards of soil.

It is our understanding that in two of the cities studied in the "Three City Lead Study," no evidence was found to prove that soil abatement reduced blood lead levels in children. In the third city, there was only a small decline in blood lead levels of children after soil abatement. The study researchers reported in the Journal of the American Medical Association that at most they had found "very modest declines in children's blood lead levels" and that a "reduction of this size would not carry substantial clinical and public health benefits."

We further understand that EPA, in its Section 403 guidance for large residential soils, recommends 5000 ppm as the level for soil abatement in areas where children are likely to be present. In its Superfund guidance on lead in soils, however, EPA recommends 400 ppm as a lead soil screening level. The 400 ppm Superfund lead soil screening level is based on a model (the Integrated Exposure Uptake Biokenetic Model), the most recent version of which has not yet been completely validated using empirical data nationwide. We understand that EPA uses this model, which relies on a number of default values, in lieu of actual blood lead data to predict the blood lead levels of children living in and near Superfund sites. Furthermore, in EPA's December 1994 draft revised soil screening guidance the 400 ppm screening level has been turned into a preliminary remediation goal. All of this is occurring while the National Health and Nutrition Examination Survey (NHANES III) shows that the mean blood lead levels for children ages 1-5 dropped 76 percent, from 15.0 to 3.6 micro grams per deciliter, between 1976 and 1991. During this same time period the mean blood lead level in the overall population dropped 78 percent, from 12.8 to 2.8 micrograms per deciliter.

We are concerned that the approach EPA is taking in its lead soil policy is resulting in the Agency requiring cleanup of lead-containing soils at Superfund sites to levels that are not justified by the real risks to human health. Many of the areas in which these overly stringent cleanup levels are either proposed or required object to EPA disrupting these local communities. They particularly object to the havoc wreaked by EPA disrupting these local communities. They particularly object to the havoc wreaked by EPA requirements when the blood lead levels in these areas are well below the Centers for Disease Control's level of concern. EPA is well aware of the public outcry in areas such as Aspen and Leadville, Colorado and Triumph, Idaho. EPA's Superfund lead soil policy is an example of how the use of models that are not based on real world data and do not take into account site-specific conditions forces the most costly cleanup remedy (i.e., the removal of huge volumes of soil) without commensurate measurable benefit to human health in terms of actual risk reduction. In addition, removing the lead-containing soil itself often poses health risks to the local community and the workers during implementation of the soil abatement activity.

The Committee on Commerce and the full House have recently approved H.R. 1022, the "Risk Assessment and Cost-Benefit Analysis Act of 1995," which requires risk assessments and cost-benefit analyses to be conducted before selecting a cleanup plan at Superfund sites. In addition, the Committee is in the process of reviewing the current Superfund program and evaluating revisions to that statute in the reauthorization process. Superfund's reauthorization and H.R. 1022, to some extent, will address our concerns with EPA's lead in soils policy. However, the local communities cannot wait until these bills are enacted into law. The Agency must take affirmative steps now to address the concerns of these communities. Therefore, we are requesting that EPA comply with the following requests:

1) lead-containing soil abatements at National Priority List (NPL) and non-NPL sites should not proceed unless a site-specific risk assessment is conducted and considered when determining the cleanup level and the remedy;

2) a cost-benefit analysis should be conducted at these sites and remedies should be selected that justify the remediation costs;

3) the Agency should provide the Committee with a date by which the final integrated "Three City Lead Study" report will be completed;

4) the Agency should release the data on which the final integrated report will be based and provide an appropriate period of time for public review and comment on the data and the report prior to finalization; and

5) the Agency should provide the Committee with a list of all NPL and non-NPL sites at which abatement of lead-containing soil below 5000 ppm has been required or proposed.

Thank you for your assistance in this matter. We would appreciate your response to these requests by April 21, 1995.

Best regards.

Sincerely,

Thomas J. Bliley, Jr. (R-VA)

Dan Schaefer (R-CO)

Mike Oxley (R-OH)

Mike Crapo (R-ID)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

MAY 18 1995

OFFICE OF
SOLID WASTE AND EMERGENCY
RESPONSE

The Honorable Thomas J. Bliley, Jr.
Chairman
Committee on Commerce
House of Representatives
Washington, D.C. 20515-6115

Dear Mr. Chairman:

Thank you for your March 30, 1995, letter to Administrator Carol Browner requesting information on EPA's soil lead policy. I am enclosing materials to address the questions that you have asked as a follow up to the March 16 hearing of the Subcommittee on Commerce, Trade and Hazardous Materials.

We hope these answers assist in clarifying Superfund soil lead activities.

Sincerely,

Elliott P. Laws
Assistant Administrator

Enclosures

OPTIONAL FORM 99 (7-90)
FAX TRANSMITTAL
# of pages ▶ 18
To
Dept.
Phone #
Fax #
GENERAL SERVICES ADMINISTRATION
NSN 7540-01-317-7368 5099-101

Response to Issues Raised by the Subcommittee on Commerce, Trade and Hazardous Materials in March 30, 1995, Letter

1) Superfund's Approach to Addressing Soil Lead Contamination

One of the primary reasons for issuing the Revised Interim Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities (OSWER Directive 9355.4-12) is that EPA believes that the past soil lead directive (which recommends cleanup at levels ranging between 500 and 1000 ppm lead in soil) no longer reflects our best understanding of the risks associated with lead. The recent soil lead directive, published on July 14, 1994, recommends the use of the Integrated Exposure Uptake Biokinetic (IEUBK) Model to assess the risks to children of environmental lead. The model is designed to consider site-specific information in estimating the contribution of different environmental sources of lead to the overall blood lead level(s) in children. The model uses site-specific data such as environmental lead levels in soil, water, and air as well as information on the children exposed (e.g., age). Superfund applies the model on a site-specific basis, although some parameters, for example, those applying to the typical diet of a child, are based on data from a larger segment of the population. Therefore, validation efforts in Superfund have focused on site-specific application of the model.

2) Agency Soil Lead Guidance Issued in July of 1994

EPA issued two guidance in July of 1994 that addressed soil lead contamination. The OSWER guidance, cited above, recommends a risk-based screening level of 400 ppm for lead in soil for residential land use, describes how to develop site-specific preliminary remediation goals or media cleanup standards at Superfund and RCRA sites, and describes a plan for soil lead cleanup at Superfund and RCRA sites that have multiple sources of lead. The OSWER guidance recommends using the IEUBK Model for evaluating potential risks to humans from environmental exposures to lead at hazardous waste sites in residential settings. The other guidance (Agency Guidance on Residential Lead-Based Paint, Lead-Contaminated Dust, and Lead-Contaminated Soil, OPPTS, July 14, 1994), which was issued by the Office of Prevention, Pesticides, and Toxic Substances (OPPTS), is designed to encourage activities to reduce lead-based paint hazards, including dust and soil, at some of the nation's most contaminated residential properties (Title IV, Section 403 of the Toxic Substances Control Act; Title X of the Housing and Community Development Act). Both guidance are intended to protect children in residential settings, and both identify 400 ppm as the soil lead level below which no further action or study would generally be needed. The OPPTS guidance describes a set of nationwide ranges of soil lead levels (400-2000 ppm, 2000-5000 ppm, and >5000 ppm) that are tied to recommendations for interim controls. The OPPTS guidance documents emphasizes that these levels are not cleanup levels, and they are not risk based and cannot be used for site-specific cleanup levels.

3) Use of Blood Lead Data

The OSWER directive released last summer (cited above) recommends the use of all available data, including blood lead data, in assessing lead related risks associated with a site. While data from well-conducted blood lead studies can be useful, they must be evaluated carefully. Blood lead measurements may be misleading as to the lead-related risks posed by a site when measurements are taken from a small sample size or at a time that does not represent exposure that will be experienced by a child. For example, the contribution of outdoor soil lead to blood lead will be lower if a child does not come into contact with that outdoor soil lead such as in a snow covered yard. EPA's Science Advisory Board has asserted that site residents may temporarily modify their behavior (e.g., wash their children's hands more frequently) whenever public attention is drawn to a site. In such cases, this behavior could mask the true magnitude of potential risk at a site and lead to only temporary reductions in the blood lead levels of children. The IEUBK Model also assists in identifying other sources of environmental lead that may pose a risk to children, such as paint. This is especially important because other sources of lead, such as paint, may provide a significant contribution to lead exposure at a site. The Interim Soil Lead Directive specifies that when other significant sources of environmental lead are identified, appropriate steps should be taken. In the case of paint that is posing a threat to children, EPA is seeking to work with other appropriate groups, such as the Department of Housing and Urban Development, to address the other sources of lead.

4) Three Cities Lead Study

Several statements on the "Three Cities Lead Study" warrant clarification. The Urban Soil Lead Abatement Demonstration Project ("Three Cities Lead Study") has been reviewed in a number of public forums and published in draft reports that are available to the public and in two scientific papers. However, additional requests for analyses by peer reviewers, affiliated with academia and state and federal agencies, have resulted in additional reviews that have delayed the publication of the final combined report. The schedule for its completion is discussed below.

Although the study has not completed final peer review, the results to date demonstrate a relationship between elevated soil lead levels and elevated blood lead levels and are consistent with EPA's current guidance that soil levels below the current screening level of 400 ppm (the level below which further study or action is generally not warranted) are unlikely to present a health risk to children. In Boston, where preabatement lead levels in soil were greatest and averaged approximately 2500 ppm, the impact of soil lead reductions on house dust could be measured even after 1 year when lead-based paint was also stabilized; and even greater reductions in blood lead concentrations were found 2 years after the original soil abatement. The combined results from both phases of the study suggest that a soil lead reduction of 2000 ppm is associated with a 2.25 to 2.70 µg/dl decline in mean blood lead level, or a decrease of 1.1-1.3 µg/dl per 1000 ppm reduction in soil lead concentration. Furthermore, the low levels of soil recontamination 1 to 2 years after abatement indicate that intervention is persistent. In Baltimore and Cincinnati, where most preabatement soil lead levels were close to the Superfund

screening level and linear regression methods of statistical analysis were used, the individual studies did not identify a relationship between reductions in soil lead and reductions in blood lead in urban neighborhoods where soil lead levels originally averaged around 500 ppm. Reanalysis by EPA using different statistical methods, however, found that reductions of lead in house dust in each city produced corresponding reductions in blood lead, a relationship that is consistent with findings in Boston.

EPA has preliminarily interpreted the results of the study to indicate that interruption of the pathways by which children are exposed to dust produces a reduction in blood lead levels. Abatement of lead-contaminated soil in areas with higher soil concentration is associated with declines in blood lead levels. In those areas with soil lead levels close to the Superfund screening level, the relationship between reductions in soil lead levels and reductions in blood lead levels was not identified, although a relationship between reduction in dust lead levels and reduction in blood lead levels were preliminarily indicated. Moreover, the study demonstrates a relationship between elevated soil lead levels and elevated blood lead levels and suggests that soil lead levels below the current screening level are unlikely to present a health risk to children. Until EPA has completed peer review, these interpretations should be considered preliminary.

5) NHANES III Trends in Blood Lead Levels

As noted, the National Health and Nutrition Examination Survey (NHANES III) shows a dramatic decrease in mean blood lead levels in the U.S. population between 1976 and 1991. Although the decline in mean blood lead levels is probably attributable to the removal of lead from gasoline and from soldered cans, exposure to lead at levels that may adversely affect the health of children remains a problem among selected subgroups of the population. The OSWER guidance is designed to address these problems.

6) Apparent Designation of 400 ppm as a Preliminary Remediation Goal

Finally, EPA's December, 1994 draft revised soil screening guidance refers to the 400 ppm screening level as a preliminary remediation goal. This statement is an error that was discovered after the draft document had gone to press, and it will be corrected in the final document.

Response to Followup made by the Subcommittee on Commerce, Trade and Hazardous Materials in March 30, 1995, Letter

Request 1 Lead containing soil abatements at National Priorities List (NPL) and non-NPL sites should not proceed unless a site specific risk assessment is conducted and considered when determining the cleanup level and the remedy.

It is our normal practice to employ a site specific risk assessment for NPL sites that may require soil abatement. The risk assessment is part of the remedial investigation, which is issued for public review and comment. Information supporting a proposed Record of Decision (ROD), which outlines the cleanup to be undertaken, includes cost and feasibility information. Most removal actions, which include non-NPL sites, target removal levels between 500 and 2,000 ppm. While removal actions do not undergo a detailed risk assessment, EPA typically seeks the advice of ATSDR in order to ensure that immediate public health impacts will be addressed by the removal action.

Request 2 A cost benefit analysis should be conducted at these sites and remedies should be selected that justify the remediation costs.

EPA is exploring approaches to the incorporation of cost benefit analyses into its decision-making process for Superfund sites. In order to fully capture benefits of health risks at sites, additional work is needed to reasonably quantify the benefits of reducing health and environmental risks. For example, lead is known to have a human health impact on children that play around Superfund sites. But, quantifying the benefits (e.g., how can we reasonably quantify the loss of intelligence associated with lead exposure for a child?) is extremely difficult.

Cost currently is one of the nine key criteria considered in the Superfund remedy selection process defined in the National Contingency Plan (NCP). In addition, the Superfund law requires that remedies selected be cost-effective. Cost-effectiveness is determined by balancing several factors critical to a successful cleanup: 1) the long-term effectiveness and permanence afforded by the remedy; 2) the extent to which the remedy reduces the toxicity, mobility, or volume of the substances through treatment; 3) the short-term effectiveness of the remedy; and 4) the cost of the remedy. "A remedy shall be cost-effective if its costs are proportional to its overall effectiveness" (NCP § 300.430(f)(1)(ii)(D)) We use the above factors to help us identify the most effective remedy at the least cost.

Last fall, during the Superfund Reauthorization debate, the Administration endorsed an approach that would have replaced the current mandate to "utilize permanent solutions and treatment technologies to the maximum extent practicable" with a call for remedies which "afford long-term reliability at reasonable cost." "Reasonableness of cost" was proposed as one of five factors for remedy selection, along with effectiveness, long-term reliability, short-term risks from implementation, and acceptability to the community.

EPA is interested in improving the rigor with which costs are considered in the Superfund remedy selection process, especially as the tools for measuring and quantifying benefits are further developed. Tools to quantify both costs and benefits for cancer and noncancer health effects as well as ecological impacts of abandoned waste disposal sites need further development. We expect to incorporate cost-benefit findings into our remedy decision-making in the future. Given the diversity of views on this subject at the current time and the lack of available tools, however, we believe it would be premature to require cost-benefit analyses on a site-specific basis.

Request 3 The Agency should provide the Committee with a date by which the final integrated "Three Cities Lead Study" report will be completed.

The eventual publication of the final "Three Cities Lead Study" is being managed by EPA's Office of Research and Development (ORD). We have worked with ORD in condensing the schedule as much as possible while including the necessary peer review steps. External peer is ongoing. In response to peer review comments, the ORD staff is currently conducting further analyses of the Three Cities study, which it expects to complete in August, 1995. The report will be made final after completion of the peer review process. If the peer review results in no additional need for analyses, the report will be released in final form in January, 1996.

Request 4 The Agency should release the data on which the final integrated report will be based and provide an appropriate period of time for public review and comment on the data and the report prior to finalization.

While epidemiology studies usually report scientific analyses of the data without releasing the data base from which the analyses are drawn, EPA intends to release to the broader scientific community the data base associated with the "Three Cities Lead Study" either concurrent with the publication of the combined report or shortly thereafter. Confidentiality considerations will require that some of the data be masked. The data and analyses based on the data are currently in the peer review process. Release of the data base following completion of the combined report will improve the ability of reviewers to carry out independent analyses by which to judge the scientific soundness of findings in the final report.

Request 5 The Agency should provide the Committee with a list of all NPL and non-NPL sites at which abatement of lead-containing soil below 5000 ppm has been required or proposed.

In order to provide a timely response to this question, EPA has drawn upon readily available sources of data, which have not undergone a rigorous review. EPA Headquarters does not maintain a list of either NPL or non-NPL sites for which lead abatement is proposed. Table 1 lists sites at which EPA believes abatement of lead-containing soil below 5,000 ppm has been

required. Table 1 lists sites reporting lead as a soil contaminant in Records of Decisions (RODs) through Fiscal Year 1993. Because efforts to reduce lead exposure typically have targeted levels below 5,000 ppm, the attached listing of sites encompasses all sites that have targeted lead as a contaminant to be addressed. These cleanup levels were determined prior to the issuance of the OSWER soil lead directive in 1994. It should also be noted that the listing of lead as a contaminant identified in the ROD does not mean that lead was the chemical that drove the cleanup levels. Other chemicals present at the site may have triggered the cleanup actions. Table 2 lists non-NPL sites where lead removal actions have taken place. Sites with multiple chemicals that may have formed the basis for cleanup have not been included in Table 2.

Table 1. NPL Sites with Lead in Soil as Identified by a ROD

Region	Site Name
1	Brunswick Naval Air Station (Operable Unit 1), ME
1	Brunswick Naval Air Station (Operable Unit 4), ME
1	Industri-plex, MA
1	New Bedford, MA
1	Newport Naval Education/Training Center, RI
1	Nyanza Chemical Waste Dump, MA
1	Nyanza Chemical Waste Dump, MA
1	O'Connor, ME
1	Otis Air National Gaurd/Camp Edward, MA
1	Pease Air Force Base (Operable Unit 1), NH
1	PSC Resources, MA
1	Saco Tannery Waste Pits, ME
1	Salem Acres, MA
1	Silresim Chemical, MA
1	Sullivan's Ledge, MA
1	Union Chemical, ME
1	Wells G&H, MA
1	Yaworski Waste Lagoon, CT
2	American Cyanamid, NJ
2	American Thermostat, NY
2	Applied Environmental Services, NY
2	Burnt Fly Bog, NJ
2	Burnt Fly Bog, NJ
2	C & J Disposal, NY
2	Circuitron, NY
2	Claremont Polychemical, NY
2	Claremont Polychemical, NY
2	Cosden Chemical Coatings, NJ
2	Circio Scrap Metal, NJ
2	DeRewal Chemical, NJ
2	Endicott Village Well Field, NY
2	FAA Technical Center, NJ
2	Facet Enterprises, NY
2	Fibers Public Supply Wells, PR
2	FMC-Dublin Road, NY

2	Genzale Plating, NY
2	Glen Ridge Radium, NJ
2	Global Landfill, NJ
2	Hertel Landfill, NY
2	Imperial Oil/Champion Chemicals, NJ
2	Industrial Latex, NJ
2	Johnstown City Landfill, NY
2	Juncos Landfill, PR
2	King of Prussia, NJ
2	Matriace Petrochemicals, NY
2	Matriace Petrochemicals, NY
2	Metaltec/Aerosystems, NJ
2	Montclair/West Orange Radium, NJ
2	Myers Property, NJ
2	Nascolite, NJ
2	Naval Air Engineering Center (Operable Unit 11), NJ
2	Naval Air Engineering Center (Operable Unit 13), NJ
2	Naval Air Engineering Center (OU2), NJ
2	Naval Air Engineering Center (OU4), NJ
2	Niagara County Refuse, NY
2	NL Industries, NJ
2	North Sea Municipal Landfill, NY
2	Pasley Solvents & Chemical, NY
2	Plattsburgh Air Force Base (Operable Unit 3), NY
2	Preferred Plating, NY
2	Reynolds Metals, NY
2	Ringwood Mines/Landfill, NJ
2	Roebling Steel, NJ
2	Roebling Steel, NJ
2	Rowe Industries Groundwater Contamination, NY
2	Scientific Chemical Processing, NJ
2	Sealand Restoration, NY
2	Sinclair Refinery, NY
2	SMS Instruments, NY
2	Solvent Savers, NY
2	Swope Oil & Chemical, NJ
2	Syncon Resins, NJ

2	Vestal Water Supply 1-1, NY
2	Waldick Aerospace Devices, NJ
2	Warwick Landfill, NY
2	Woodland Township Route 532, NJ
2	Woodland Township Route 72, NJ
3	Abex Corp, VA
3	Arrowhead Associates/Scovill, VA
3	Brodhead Creek, PA
3	Brown's Battery Breaking, PA
3	Brown's Battery Breaking, PA
3	C & D Recycling, PA
3	C & R Battery, VA
3	Douglassville Disposal, PA
3	Dover Air Force Base, DE
3	Eastern Diversified Metals, PA
3	E.I. Du Pont, DE
3	First Piedmont Quarry 719, VA
3	Hebelka Auto Salvage Yard, PA
3	Hranica Landfill, PA
3	Hunterstown Road, PA
3	Industrial Drive, PA
3	Keystone Sanitation Landfill, PA
3	Lindane Dump, PA
3	McAdoo Associates, PA
3	Modern Sanitation Landfill, PA
3	MW Manufacturing, PA
3	MW Manufacturing, PA
3	Novak Sanitary Landfill, PA
3	Old City of York Landfill, PA
3	Ordnance Works Disposal Areas, WV
3	Osborne Landfill, PA
3	Taylor Borough Dump, PA
3	Tonolli, PA
3	USA Aberdeen, Michaelsville, MD
3	Walsh Landfill, PA
4	Aberdeen Pesticide Dumps (Amendment), NC
4	Agrico Chemical, FL

4	Alabama Army Ammunition Plant, AL
4	Anodyne, FL
4	Benfield Industries, NC
4	Bypass 601 Groundwater Contamination (Amendment), NC
4	Bypass 601 Groundwater Contamination, NC
4	Bypass 601 Groundwater Contamination, NC
4	Carolina Transformer, NC
4	Carrier Air Conditioning, TN
4	Cedartown Industries, GA
4	Celanese/Shelby Fibers Operations, NC
4	Ciba-Geigy (McIntosh Plant), AL
4	Davie Landfill, FL
4	Distler Brickyard, KY
4	Distler Farm, KY
4	Elmore Waste Disposal, SC
4	Firestone Tire & Rubber (Albany Plant), GA
4	Florida Steel, FL
4	Fluwood, MS
4	Geiger (C & M Oil) (Amendment), SC
4	Geiger (C & M Oil), SC
4	Gold Coast Oil, FL
4	Golden Strip Septic Tank, SC
4	Hercules 009 Landfill, GA
4	Interstate Lead (ILCO), AL
4	Jadco-Hughes, NC
4	Kalama Specialty, SC
4	Kassouf-Kimerling Battery Disposal, FL
4	Kassouf-Kimerling Battery Disposal, FL
4	Lewisburg Dump, TN
4	Marine Corp Logistics Base, GA
4	Mathis Brothers Landfill (South Marble Top Road), GA
4	Maxey Flats Nuclear Disposal, KY
4	Newsom Brothers/Old Reichhold Chemicals, MS
4	Peak Oil/Bay Drum (Operable Unit 1), FL
4	Peak Oil/Bay Drum (Operable Unit 3), FL
4	Peppers Steel & Alloys, FL
4	Picketville Road Landfill, FL

4	Potter's Septic Tank Service Pits, NC
4	Reeves Southeastern Galvanizing (Operable Unit 1), FL
4	Sapp Battery Salvage, FL
4	Savannah River (USDOE)(Operable Unit 1), SC
4	Savannah River (USDOE)(Operable Unit 2), SC
4	Schuylkill Metal, FL
4	Sixty-second Street Dump, FL
4	Smith's Farm Brooks (Amendment), KY
4	Smith's Farm Brooks, KY
4	Smith's Farm Brooks, KY
4	Standard Auto Bumper, FL
4	Tower Chemical, FL
4	USAF Robins Air Force Base, GA
4	Whitehouse Waste Oil Pits (Amendment), FL
4	Wrigley Charcoal, TN
4	Zellwood Groundwater Contamination (Amendment), FL
5	Acme Solvent Reclaiming, IL
5	American Chemical Services, IN
5	Anderson Development, MI
5	Arcanum Iron & Metal, OH
5	Arrowhead Refinery, MN
5	Auto Ion Chemicals, MI
5	Belvidere Municipal Landfill #1, IL
5	Berlin & Farro, MI
5	Big D Campground, OH
5	Bowers Landfill, OH
5	Buckeye Reclamation, OH
5	Burrows Sanitation, MI
5	Butterworth #2 Landfill, MI
5	Byron Salvage Yard, IL
5	Cannelton Industries, MI
5	Carter Industrials, MI
5	Chem-Central, MI
5	City Disposal Sanitary Landfill, WI
5	Dakhue Sanitary Landfill, MN
5	Electrovoice, MI
5	Fadrowski Drum Disposal, WI

5	Folkertsma Refuse, MI
5	G & H Landfill, MI
5	Hagen Farm, WI
5	Himco Dump, IN
5	H.Brown Company, MI
5	Kohler Landfill, WI
5	Lake Sandy Jo/M & M Landfill, IN
5	Laskin/Poplar Oil, OH
5	Lemberger Landfill, WI
5	Liquid Disposal, MI
5	Master Disposal Service Landfill, WI
5	Miami County Incinerator, OH
5	Motor Wheel, MI
5	New Brighton/Arden Hills (TCAAP), MN
5	NL Industries Taracorp Lead Smelt, IL
5	NL Taracorp Golden Auto, MN
5	Oconomowoc Electroplating, WI
5	Old Mill, OH
5	Onalaska Municipal Landfill, WI
5	Pagel's Pit, IL
5	Peerless Plating, MI
5	Powell Road Landfill, OH
5	Pristine (Amendment), OH
5	Rasmussen's Dump, MI
5	Rose Township Dump, MI
5	Rose Township (Amendment), MI
5	Sangamo Dump/Crab Orchard NWR (USDOI), IL
5	Sangamo Dump/Crab Orchard NWR (USDOI), IL
5	Schmalz Dump, WI
5	Seymour Recycling, IN
5	Skinner Landfill, OH
5	South Andover (Operable Unit 2), MN
5	Spickler Landfill, WI
5	Spiegelberg Landfill, MI
5	Springfield Township Dump, MI
5	Summit National Liquid Disposal Service, OH
5	Thermo Chem, MI

5	Torch Lake (Operable Units 1 and 3), MI
5	United Scrap Lead, OH
5	University of Minnesota (Rosemount Research Center), MN
5	Velsicol Chemical (Illinois), IL
5	Wash King Laundry, MI
5	Wayne Waste Oil, IN
5	Woodstock Municipal Landfill, IL
5	Zanesville Well Field, OH
6	Cal West Metals, NM
6	Cimarron Mining, NM
6	Cleveland Mill, NM
6	Double Eagle Refinery, OK
6	Fourth Street Abandoned Refinery, OK
6	Gulf Coast Vacuum Services (Operable Unit 1), LA
6	Gulf Coast Vacuum Services (Operable Unit 2), LA
6	MOTCO, TX
6	MOTCO, TX
6	Oklahoma Refining, OK
6	Petro-Chemical (Turtle Bayou), TX
6	Prewitt Abandoned Refinery, NM
7	Cherokee County, Kansas, KS
7	Doepke Disposal Holliday, KS
7	EI DuPont De Nemours (County Rd X23), IA
7	Fairfield Coal Gasification Plant, IA
7	Hastings Groundwater Contamination (East Industrial), NE
7	John Deere (Ottumwa Works Landfill), IA
7	McGraw Edison, IA
7	Mid-America Tanning, IA
7	Midwest Manufacturing North Farm (OU 2)(Amendment), IA
7	Midwest Manufacturing North Farm (OU 3)(Amendment), IA
7	Midwest Manufacturing/North Farm, IA
7	Northwestern States Portland Cement, IA
7	Pester Refinery, KS
7	Red Oak City Landfill, IA
7	Shaw Avenue Dump, IA
7	Weldon Spring Quarry/Plant/Pits (USDOE), MO
7	White Farm Equipment Dump, IA

8	Broderick Wood Products (Amendment), CO
8	Broderick Wood Products, CO
8	Denver Radium (Operable Unit 8), CO
8	Denver Radium (Operable Unit 9), CO
8	Eagle Mine, CO
8	East Helena, MT
8	Martin Marietta, Denver Aerospace, CO
8	Minot Landfill, ND
8	Montana Pole and Treating, MT
8	Monticello Mill Tailings (DOE), UT
8	Ogden Defense Depot (Operable Unit 1), UT
8	Ogden Defense Depot (Operable Unit 4), UT
8	Portland Cement (Kiln Dust #2 & #3), UT
8	Rocky Flats Plant (USDOE)(Operable Unit 2), CO
8	Rocky Mountain Arsenal (Operable Unit 20), CO
8	Rocky Mountain Arsenal (Operable Unit 28), CO
8	Sand Creek Industrial, CO
8	Sharon Steel (Midvale Tailings), UT
8	Silver Bow Creek/Butte Area, MT
8	Silver Bow Creek/Butte Area, MT
8	Smuggler Mountain, CO
8	Utah Power & Light/American Barrel, UT
9	Advanced Micro Devices 901 (Signetics)(TRW Micro.), CA
9	Beckman Instruments (Porterville), CA
9	Celtor Chemical Works, CA
9	FMC (Fresno Plant), CA
9	Hassayampa Landfill, AZ
9	Iron Mountain Mine, CA
9	Jibboom Junkyard, CA
9	Lawrence Livermore National Lab (USDOE), CA
9	Liquid Gold Oil, CA
9	Lorentz Barrel & Drum, CA
9	McClellan Air Force Base, CA
9	McColl, CA
9	Pacific Coast Pipe Lines, CA
9	Purity Oil Sales, CA
9	Rhone-Poulenc/Zoecon, CA

9	Sacramento Army Depot (Operable Unit 4), CA
9	Sacramento Army Depot, CA
9	Signetics (AMD 901)(TRW Microwave), CA
10	Bangor Ordnance Disposal (USN Sub Base), WA
10	Bonneville Power Administration Ross Complex (USDOE)(OU1), WA
10	Bonneville Power Administration Ross Complex (USDOE)(OU2), WA
10	Bunker Hill Mining and Metallurgical Complex, ID
10	Bunker Hill Mining and Metallurgical Complex, ID
10	Commencement Bay - Nearshore/Tideflats, WA
10	Commencement Bay - Nearshore/Tideflats, WA
10	Commencement Bay - Nearshore/Tideflats, WA
10	Fort Lewis Logistic Center, WA
10	Hanford 1100-Area (DOE), WA
10	Harbor Island-Lead, WA
10	Joseph Forest Products, OR
10	Pacific Hide & Fur Recycling (Amendment), ID
10	Queen City Farms, WA
10	Teledyne Wah Chang Albany (TWCA), OR
10	Umatilla Army Depot (Operable Unit 1), OR
10	Union Pacific Railroad Yard, ID
10	Western Processing, WA
10	Wyckoff/Eagle Harbor, WA
10	Yakima Plating, WA

Table 2. PC CERCLIS VERSION OF MAINFRAME CERCLIS REMOVAL 14A
SUMMARY OF NON-NPL REMOVAL PROJECTS
PRIMARILY INVOLVING LEAD

ID	SITE NAME	SITE LOCATION	STATE	LEAD	NPL STATUS	EVENT TYPE	EVENT CLASS	START IND	START DATE	COMP IND	COMP DATE
5489763	SKEET CLUB	HUDSET	NH	NP	N	RV1	TC	A	09/26/94	A	
5954030	CLINTOS ST. - BENDER AVE	BUFFALO	NY	NP	N	RV1	TC	B	07/06/92	B	
5954030	CLINTON ST. - BENDER AVE	BUFFALO	NY	NP	N	RV2	TC	D	09/30/93	D	
0033459	BYELAND ROAD ARSENIC SITE	HEIDELBERG TWP.	PA	F	N	IR1		A	07/22/85	A	
1338743	SSCD SCHOOLYARD	PUNXSATAWNEY	PA	F	N	RV1	TC	A	10/15/86	A	03/10/87
2222025	JACKSON CERAMIX INC	FALLS CREEK	PA	F	N	RV1	TC	B	05/28/88	B	02/10/89
2220025	JACKSON CERAMIX INC	FALLS CREEK	PA	F	N	RV2	EM	D	04/30/90	B	10/26/90
1776368	SCOTT ROBINSON LEAD BATTERY	WISE	VA	F	N	RV1	TC	A	10/09/90	A	06/04/92
1724835	COEBURN BATTERY DISPOSAL SITE	COEBURN	VA	F	N	RV1	TC	A	09/21/92	A	
3339624	BAKER BROTHERS SCRAP YARD	LEWISBURG	PA	F	N	RV1	TC	A	04/07/93	E	04/22/93
3332541	HAMBURG PLAYGROUND SITE	HAMBURG	PA	F	N	RV1	TC	A	09/01/93	A	
1112364	HYNAS WIENER & SONS	RICHMOND	VA	F	N	RV1	TC	A	01/08/94	A	
2830952	HARRY BRANCH LEAD SITE	WHITEWOOD	VA	F	N	RV1	TC	A	04/19/94	A	
2226500	TAZEWELL LEAD ACID BA[illegible] RY AREA 1	AMONATE	VA	F	N	RV1	TC	A	09/26/94	A	01/10/95
2019604	MCDOWARD PROPERTY PAINT DRUMS	MYRTLE BEACH	SC	F	N	RV1		A	04/07/87	A	04/29/87
1693338	MICHAEL CO (BLITZADORF)	BETTENDORF	IA	RP	N	RV3		A	08/26/86	E	11/17/86
1107367	MICHAEL BATTERY (ROCKINGHAM)	DAVENPORT	IA	F	N	RV3	TC	A	11/08/90	A	04/18/91
1727944	BATTERY EXCHANGE	CLEAR LAKE	IA	SF	N	RV1	TC	B	01/07/92	B	01/09/92
1727582	KALONA BATTERY COMPANY	KALONA	IA	F	N	RV1	TC	A	01/25/92	E	04/20/92
1727944	BATTERY EXCHANGE	CLEAR LAKE	IA	F	N	RV2	TC	D	05/12/93	D	10/20/93
1364897	BLACK HAWK IRON & METAL INC	WATERLOO	IA	F	N	RV1	TC	A	06/06/94	A	06/30/94
2397064	TORRINGTON HIDE & METAL	TORRINGTON	WY	F	N	RV1	TC	B	01/02/91	E	04/12/94
2397064	TORRINGTON HIDE & METAL	TORRINGTON	WY	RP	N	RV2	TC	D	04/12/94	B	
3625786	KING NEPTUNE	BELL GARDENS	CA	F	N	RV1	TC	A	05/11/92	A	07/04/92
6775200	BERGSTROM DUMP SITE	SANDY VALLEY AREA	NV	RP	N	RV1		A	12/15/92	A	03/19/93

17:95
17:95

PC CERCLIS VERSION OF MAINFRAME CERCLIS REMOVAL 14A
SUMMARY OF NON-NPL REMOVAL PROJECTS
PRIMARILY INVOLVING LEAD

SITE NAME	SITE LOCATION	STATE	LEAD	NPL STATUS	EVENT TYPE	EVENT CLASS	START IND	START DATE	COMP IND	COMP DATE
497 ALASKA HUSKY BATTERY INC.	ANCHORAGE	AK	F	N	RV1		A	08/30/88	A	09/09/88

TESTIMONY OF CRAIG A. TARPOFF

Co-Chairman, Superfund Coalition Against Mismanagement
Alderman, City of Granite City, Illinois

BEFORE
THE SUBCOMMITTEE ON
COMMERCE, TRADE, AND HAZARDOUS MATERIALS

COMMITTEE ON COMMERCE
U.S. HOUSE OF REPRESENTATIVES

Washington, DC

May 23, 1995

Introduction

Mr. Chairman and members of the committee, my name is Craig A. Tarpoff. I wish to thank you for this opportunity to address the Superfund Law and how it is hurting the environmental and economic health of dozens of communities like mine. I am here before you today as a representative of both the City of Granite City, Illinois, in my capacity as City Alderman, and as Co-Chairman of the Superfund Coalition Against Mismanagement.

My town of Granite City has the dubious distinction of being a Superfund community. It is a member of the Superfund Coalition Against Mismanagement, a national coalition of Superfund communities like Granite City which are trying to rid themselves of the Superfund burden. I am also a member of the Society for Environmental Geochemistry and Health and a past participant in discussion groups regarding the Department of Housing and Urban Development's lead-remediation policies. I was also present at Research Triangle Park for EPA's release and discussion of their $15 million "Three-Cities Study."

The Superfund Coalition Against Mismanagement banded together in the Fall of 1992 in Aspen, Colorado when the U.S. Environmental Protection Agency hosted its infamous "Panel of Experts" forum to debate the efficacy of EPA's Superfund cleanup programs in

Aspen. At the urging of Mayor Zaitz from Leadville, Colorado, representatives from about two dozen communities like mine came together in Aspen -- at their own expense -- to discuss the creation of a small coalition of communities concerned about solving their Superfund problems. As we shared our experiences, it became clear that we were all victims of tremendous mismanagement problems plaguing the EPA. We incorporated the non-profit coalition in Colorado and Pennsylvania, with the express intent of affecting reform of Superfund and the EPA's soil/lead policies which have been hurting all our communities.

Today, our coalition includes several hundred members from more than 30 Superfund communities in about a dozen different states, along with EPA contract scientists, elected officials and non-voting industry representatives. We receive funding through individual dues and in-kind contributions. The executive committee of the coalition, which governs its activities, includes elected public representatives from communities in Colorado, Illinois, Pennsylvania, and Utah.

Superfund Often Harms Local Communities and the Environment

We have found that the remedies which EPA selects—and the faulty methodologies they use to select the remedies—often harms the community which EPA is supposed to protect. Our coalition's experiences revolve around how EPA has invented and misused its so-called lead-in-soils policies under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and the Resource Conservation and Recovery Act (RCRA). The way EPA's Superfund managers have misused this policy and hurt local communities' environmental quality and economic well-being provides a useful case study on what's wrong with Superfund.

The EPA's lead-in-soils policy, which sets "screening levels" (trigger levels) for allowable lead levels in residential soils is allowing EPA to create Superfund sites in communities where levels of lead in soils reach 400 parts-per-million (ppm) or more. EPA orders expensive and intrusive soil removals on the theory that soil removals reduce the risk of lead poisoning. When EPA finds soils lead levels at 400 ppm or more, it then uses its

infamous Integrated Uptake Biokinetic (IUBK) computer model to predict lead health risks based on lead/soil concentrations. Ironically, this 400 ppm threshold is below the average concentrations of lead-in-soil levels typically found in inner cities or near roadways. (For instance, EPA has found that soils around interstate highways have lead levels averaging 1100 ppm – most likely the result of the historic use of leaded gasoline in automobiles.)

This cleanup policy is erroneous for one main reason: <u>Soil removals do practically nothing to reduce lead related health risks.</u> For example, EPA's own $15 million "Three-Cities Study" has proven that soil removals are not effective -- which is probably why EPA refuses to issue a final report on the Three-Cities Study. During the many years which I have been working on this issue, I have found that almost every independent research scientist involved in lead toxicology agrees that soil removals are ineffective at reducing blood lead levels for soil lead concentrations below 2,000 - 4,000 ppm. Even the nationally recognized Alliance to End Childhood Lead Poisoning has gone on record questioning the effectiveness of lead-in-soil cleanups. This is because lead-related health risks are consistently associated with lead-based paint and old lead plumbing, not dirt.

What we have seen in community after community is the following pattern:

Stage 1 -- EPA proposes a community for Superfund based on some potential risk.

Stage 2 – EPA begins work on problems which they claim present some risk.

Stage 3 – EPA begins looking for new problems and "risks" to address, and starts looking for signs of lead contamination.

Stage 4 – After EPA inevitably finds signs of lead "contamination," the agency tells the community that because of "elevated" lead levels in soils, their computer models predict that some segment of the community's population is theoretically suffering lead risks.

Stage 5 – EPA begins a public relations campaign to convince residents that severe lead poisoning risks are posed to children because of the soil-lead concentrations.

Stage 6 – EPA enters low-income communities with "elevated" lead-in-soil levels and begins promising homeowners new yards, new gardens, new carpets and even new home structures. EPA attempts to create the political demand for its soil removal programs. The result is that communities are needlessly redlined and money is wasted on ill-advised dirt cleanups.

Stage 7 -- EPA project managers become fixated on dirt removals, while often ignoring more important environmental problems. Companies held liable for cleanups balk at spending $40,000 to $100,000 per home for cleanup work which does no good. Important environmental priorities are ignored and the pace of cleanup is perpetually stalled.

What is most disconcerting is that the Superfund cleanup policies are often based on questionable science, statistical manipulation, and cleanup prescriptions which do not improve environmental quality.

The misuse of the lead-in-soils policy has caused "environmental redlining," whereby properties in and around a Superfund site are "redlined." Homeowners often can't sell or refinance their properties, because of the extremely controversial "theoretical, potential health threats" which EPA Superfund managers claim exist in a community. Moreover, we have seen that EPA's preoccupation with dirt cleanups divert scarce cleanup dollars away from truly important environmental priorities. Our communities suffer, as does environmental quality.

Let me highlight some of the horror stories which our coalition members have witnessed under EPA's Superfund program and their implementation of the soil/lead policy:

- Ben Frei, a member of our coalition from Midvale, Utah and a father of a sizeable family, attempted to obtain a home equity loan to expand the size of his home for his growing family. Banks declined to lend money to Ben because his home was within a Superfund site. Even though Midvale residents have blood lead levels around the national average, they can't renovate their homes because of a "theoretical, potential health threat" (from lead levels in dirt) which, in fact, is no threat at all.

- Also in Midvale, Utah, Superfund managers have induced the public into accepting ill-advised soil removals by offering to replace about a dozen garages. (Interestingly, Midvale residents using gardens with "contaminated" soils have lower blood-lead levels than the average population.)

- In Granite City, Illinois U.S. EPA has been preoccupied with dirt removals, even though Granite City residents have blood-lead levels equivalent to those

found outside of the Superfund site. While preoccupied with dirt, EPA for a decade has ignored the risk posed by a lead/slag pile adjacent to downtown which sits just 15 feet above an aquifer connected to the Mississippi River.

- Also in Granite City, EPA used their "IUBK" computer model to justify soil-lead removals. We found that EPA's model assumed that NO lead sources came from paint, or "painted surfaces in good condition." (The overwhelming majority of Granite City homes within the Superfund site test positive for lead-based paint.) If the model had allowed for leaded paint sources, the model would have dictated that even more dirt would have to be removed in order to protect against leaded paint poisoning! We have found that EPA consistently manipulates their data with computer models in order to exercise their own agendas—which seem to have little to do with improving environmental quality.

- Also in Granite City, EPA attempted to force residents to remediate exterior leaded paint so that soils would not be recontaminated.

- In Park City, Utah, a residential/commercial area was declared a Superfund site based on lead-in-soil concentrations found in this historic mining town. The city floated bonds to pay for its own cleanup program — which EPA refused to approve. Even after the Agency for Toxic Substances and Disease Registry determined that the city's cleanup was effective, EPA refused to de-list the site and Congress decided to legislatively de-list the community in 1986.

- In Palmerton, Pennsylvania, EPA's Superfund program performed soil/lead remediations on 11 homes during the summer of 1994. None of the homes had residents with elevated blood-lead levels, at least one home had soil-lead concentration well below the 400 ppm trigger level. In September 1994, in response the Palmerton community's questions about EPA actions to remediate homes which did not meet the agency's own criteria, EPA's regional administrator there stated, "It could be that a homeowner (in Palmerton) is lying to us and no children visit that house and they're getting a free couch." Here again, EPA is remediating homes that don't need to be remediated, and uses sofa and carpet giveaways to garner support for EPA's programs.

- In Leadville, Colorado, EPA's Superfund has forced the expenditure of over $50 million, and only $13 million of this sum has gone toward real remedation projects. Also, in the Summer of 1994 EPA administered a project to divert stormwater, and spent more than $1,000 per hay bale to do so.

- In Aspen, Colorado, EPA attempted to force wholesale dirt removals even though an internationally renowned panel of scientists---selected by EPA---concluded that there is no justification to implement such remedies.

- In Triumph, Idaho, EPA proposed this small community for the Superfund list and ranked it as the most hazardous site in history, based on entirely erroneous data. EPA argued that "elevated" soil/lead levels posed an unacceptable risk, even though residents have blood-lead levels below the national average. As resident Donna Roae has stated, the greatest health risk in Triumph has been the human stress created by EPA.

- In order to justify its Soil-Lead remedy selection policies, EPA has begun a series of "Pig Study" research programs to ascertain the toxicity of soil-lead levels to humans. The only unquestionable conclusion after three years of "Pig Study" research is that pigs enjoy eating cookie dough.

- In using its IUBK computer model to select soil remediation remedies, EPA's computer model has never accurately predicted blood-lead levels (based on soil lead concentrations). Yet, this is the main tool they use for multi-million-dollar remedy selections at sites accused of having "elevated" soil-lead concentrations.

- EPA refuses to release its final reports from their $15 million "Three-Cities Study", which was conducted to prove the hypothesis that soil removals reduce lead-related health risks. The reason EPA refuses to release the details of this study is that it proves that soil removals don't produce real benefit to anyone other than EPA contractors.

- Interestingly, those EPA managers responsible for preparing the "Three-Cities Study" are the same people responsible for inventing EPA's dependence on the IUBK computer model.

- In February of this year, EPA proposed a residential area in Bossier City, Louisiana for Superfund status, even though a $4 million health risk assessment---reviewed and endorsed by the local governments there---reveals that there are no immediate health risks posed at the site. Here again, EPA is using commonly occurring "elevated" soil-lead levels to help justify the existence of Superfund. The Bossier City Council recently responded to the EPA threat by unanimously passing a resolution calling for a voluntary City-Directed cleanup in lieu of Superfund listing.

It should also be noted that the EPA issued this highly controversial lead-in-soil Superfund policy without undergoing public review or comment. The agency circumvented a formal rulemaking process on this costly policy by issuing it as a "mere directive," arguing that the policy is "just guidance." Despite these pronouncements, in 1994 EPA proposed soil remediation work for the City of Beckemeyer, Illinois because "results detected lead levels greater than 500 part per million (ppm), a level that exceeds federal standards."

It is a travesty that EPA is allowed to promulgate such destructive Superfund policies while being immune from public comment and scientific review. This is an example of how EPA makes up policies behind closed doors which hurt people and the environment.

Almost Any Community Can Be Threatened by Superfund

Because lead is such a pervasive element -- historically used in everything from paint, to plumbing solder to gasoline -- lead levels in American soils commonly exceed EPA's threshold standard of 400 parts-per-million. Inner city soils across the country are consistently laced with lead levels above this threshold. Based on EPA's "trigger level" of 400 ppm, practically anyplace can become a Superfund site -- even some EPA office sites.

It makes little environmental sense to allow EPA to create such policies which allow them to create unjustified Superfund sites practically anywhere, especially since such cleanup policies will result in little or no benefit to anyone except the Superfund managers looking for job security. Unless we change EPA's Lead-in -Soils and Superfund policies, many, many more communities will be needlessly hurt.

Why Superfund Harms People

The problem with Superfund is fundamental: It vests practically unlimited powers in the hands of a single government entity without providing any real checks and balances or oversight of that government entity. Moreover, it is essential for those in Washington to understand that Superfund is an animal of EPA's regional offices -- it provides for a self-funding bureaucracy at the regional level, practically immune from budgetary oversight. Superfund allows young EPA bureaucrats around the country to create million-dollar research fiefdoms simply by finding some "theoretical, potential health threat" and taking actions against any property owners or industries associated with the potential threat. Add to this the fact that EPA can make up its own rules as it goes along without answering to the public, the scientific community or Congress, and you have a remedy selection system programmed for failure.

Coalition Work on Superfund Reform

For the past two years the Superfund Coalition Against Mismanagement has been involved in several policy reform activities:

- Participated in discussion groups for the proposed Title X soil-lead remediation policies promulgated by the Housing and Urban Development agency.
- Formally requested the opportunity to comment on EPA's interim soil-lead guidance policies.
- Formally requested the opportunity to comment on EPA's proposed (new) soil-lead guidance.
- Provided comments on EPA's proposed Soil Screening Guidance for toxic contaminants.
- Assisted coalition members in seeking new state deferrals of Superfund sites.
- Delivered a national petition to Administrator Browner from over 40 communities and 12 states asking EPA to subject its proposed soil-lead policy to public review and comment. (EPA refused.)

- Assisted coalition members in bringing legal actions against EPA.

- Brought suit against the EPA and challenged its final soil-lead policy issued in July 1994. The coalition asked the U.S. District Court of Appeals to order EPA to undertake a formal rulemaking process for its soil-lead policies. The Court recently found that the coalition's suit was not yet ripe for review, and left open the opportunity to lodge legal challenges in the future.

- Called on Congress to rescind EPA's lead-in-soil policies.

Superfund Reforms Needed

At this point, Mr. Chairman, whatever Congress does on the "big picture" Superfund issues like joint and several liability or retroactive liability, such policy reforms probably won't help our coalition members because we are already under the Superfund cloud. Nor will the prospective reforms help communities already on the Superfund list. Most importantly, if EPA is allowed to continue to create policy by circumventing the rulemaking process, many reforms which Congress may adopt will be circumvented by EPA's ability to issue "directives" and "guidance."

For these reasons, we urge you to consider the following kinds of policy reforms:

Rescind the EPA's Lead-in-Soils Policy

→ Order the EPA to rescind the Lead-in-Soils Guidance until the agency undertakes a formal rulemaking process for its Lead-in-Soils policy. This guidance must be subject to scientific peer review and public comment.

→ Order the EPA to halt all lead-in-soil remediation activities, unless such cleanup work is formally approved by the local governments in which the Superfund site(s) exist.

Require Lead-Safe Policy

→ Require EPA to promulgate environmental policies which truly promote a "lead safe" environment, rather than the impossible "lead free" environment which EPA seems to prefer.

Require Cost-Benefit Tests on "Guidance"

→ Require EPA to conduct cost-benefit tests on any "guidance" or "directive" which threatens to cost more than $5 million.

Require EPA to Enforce Lead-in-Soil Remedies on Itself

→ If EPA truly believes that soil removal remedies reduce risk, then the agency should be required to enforce its own policies on itself. Therefore, we suggest that all EPA facilities, and federal facilities be screened for soil lead levels. Remediation projects should be undertaken at EPA facilities which are consistent with those projects EPA is suggesting for Granite City, Beckemeyer, Palmerton, Leadville and all other sites. We caution the committee, however, in that such an effort would also waste hundreds of millions of dollars without resulting in any benefit.

Elective De-Listing

→ Consider creating a provision for *elective de-listing* under Superfund. Under this concept, if the EPA fails to complete a cleanup or agree to a cleanup plan within 10 years of listing, any state or local government affected by the site's listing could unilaterally call on another federal agency to review either the current condition of the site or review an alternative cleanup plan advocated by the local government entity. If the federal agency determined either that the current condition of the site posed no substantial health risk, or determined that the alternative cleanup plan would effectively reduce real health risks at the site, then EPA would be required to either de-list the site or agree to adopt the cleanup plan and de-list the site within a specific time period. For Superfund sites which are not fund-directed, alternative cleanup plans advanced under such an elective de-listing provision must be jointly agreed to by the local government entities and the potentially responsible parties involved at the site.

With this alternative, local communities would have the authority and incentive to work with potentially responsible parties to quickly find solutions to environmental problems. This authority would be *"elective,"* in that it can be exercised voluntarily by local communities. Such an approach also allows communities to more directly affect the issues of remedy selection, allowable risk, etc.

Mr. Chairman and members of the committee, I thank you for this opportunity to describe our coalition's problems with Superfund. We trust we can work with you to try and fix this program before it hurts us more.

I would be happy to address any questions from the committee.

Tarpoff tells Congress EPA lead policies faulty

By Bob Slate
Staff writer

A Granite City alderman was to testify before a Congressional subcommittee Tuesday that the U.S. Environmental Protection Agency actually hurts the environmental and economic health of dozens of communities.

Tarpoff

Craig Tarpoff said he would tell the U.S. House of Representatives' Commerce Committee's Subcommittee on Commerce, Trade and Hazardous Materials that EPA's policies with regard to lead "are often based on questionable science, statistical manipulation and cleanup prescriptions which do not improve environmental quality" and have been "invented and misused" by "young EPA bureaucrats around the country to create million-dollar research fiefdoms" and "managers looking for job security."

Tarpoff, who is a member of the Society for Environmental Geochemistry and Health and a member of the advisory board of the Superfund Coalition Against Mismanagement (SCAM), said many independent studies have shown that lead-contaminated soil removal does practically nothing to reduce health-related risks.

For example, EPA's own $15 million "Three Cities Study," conducted to prove the hypothesis that soil removal is effective in reducing lead-related health risks, proved that soil removals are not effective, Tarpoff said.

He said lead contamination re-appeared in each of the three cities studied, and that it actually spread in one of the cities.

"The reason EPA refuses to release the details of this study is that it proves that soil

(See TARPOFF, Page 11)

•Tarpoff —

(Continued from Page 1)

removals don't produce real benefit to anyone other than EPA contractors," he said.

"I have found that almost every independent research scientist involved in lead toxicology agrees that soil removals are ineffective at reducing blood lead levels," Tarpoff said.

But, he said, EPA managers become obsessed with soil cleanups to the point where they ignore lead sources that pose true risks — like lead paint and old plumbing.

EPA recently issued a policy which sets the trigger level for a soil-lead cleanup at 400 parts of lead per million parts soil — a level that is below the average concentration of lead-in-soil typically found in inner cities.

"For instance, EPA has found that soils around interstate highways have lead levels averaging 1,100 parts per million — most likely the result of the historic use of leaded gasoline in automobiles," Tarpoff said.

"Based on EPA's trigger level of 400 ppm, practically anyplace can become a Superfund site — even some EPA office sites," Tarpoff said.

In Granite City, for example, EPA is considering a $35 million soil removal from all yards with lead concentration of 400 ppm or more — even though a blood lead study by the Illinois Department of Public Health determined that residents within the Superfund site have no higher blood lead levels than those outside the site.

And at the same time, EPA has proposed doing nothing with a 290,000 ton lead-slag pile that sits in the middle of the Superfund site — directly above an aquifer that feeds the Mississippi River. Groundwater contamination has been discovered under the pile.

Tarpoff said the EPA obsession with lead in soils is primarily the result of computer modeling designed to predict lead health risks based on lead-soil concentrations. Yet, he said, the computer model "has never accurately predicted blood-lead levels" based on soil lead concentrations.

In the Granite City case, for example, the EPA computer model used to justify the proposed cleanup assumed that no lead sources came from paint — even though the IDPH study found that the overwhelming majority of the homes within the Superfund site test positive for lead-based paint.

"We have found that EPA consistently manipulates their data with computer models in order to exercise their own agendas — which seem to have little to do with improving environmental quality," Tarpoff said.

Tarpoff said he would testify about several other communities from across the country where he said EPA insisted on spending millions of dollars to remove soil based on a "theoretical, potential health threat" while ignoring "truly important environmental priorities."

Tarpoff said he would urge Congress to halt all lead-in-soil remediation activities unless the work is formally approved by the local governing body in which the Superfund site is located.

He also promotes the goal of a "lead safe" environment as opposed to the "lead free" environment EPA seems to prefer; requiring EPA to conduct cost-benefit analyses on any policies that could cost more than $5 million; and "de-listing" of Superfund communities if EPA fails to complete a cleanup plan within 10 years of listing.

Tarpoff said he would also suggest EPA follow its own rules.

"Finally, if EPA believes that soil removal remedies reduce health risk, then the agency should be required to enforce its own policies on itself," Tarpoff planned to testify.

"We suggest all EPA facilities and federal facilities be screened for soil lead levels. Remediation should be undertaken at EPA facilities which are consistent with those projects EPA is suggesting for (Superfund sites)," he said.

"We caution the committee, however in that such an effort would also waste hundreds of millions of dollars without resulting in any benefit."

Tarpoff: Policies hurt other communities

Some of the adverse results of EPA policies in other communities, according to Craig Tarpoff:

- In Midvale, Utah, where residents — including those with gardens in "contaminated" soils — have blood lead levels at about the national average, banks refuse to issue home equity loans within the Superfund site.
- In Park City, Utah — a historic mining town — EPA refused to approve a cleanup proposed by residents and businesses. The city floated bonds to pay for its own cleanup program and the Agency for Toxic Substances and Disease Registry determined that the cleanup was effective. EPA refused to take the city off the Superfund list, so Congress legislatively de-listed the community.
- In Palmerton, Pennsylvania, EPA remediated soils from 11 homes last summer — including one that had lead concentration well below 400 ppm. None of the residents of the homes had elevated blood-lead levels, Tarpoff said. When the community questioned the EPA remediation, an EPA administrator said that the homeowner requested the cleanup because EPA was offering new sofas and carpet to targeted homes.
- EPA spent more than $1,000 per hay bale to divert stormwater in Leadville, Colorado last summer. So far, EPA has spent more than $50 million in Leadville, of which about $13 million has gone toward actual cleanup, Tarpoff said.
- In Aspen, Colorado, EPA attempted to force wholesale dirt removals even after an internationally-renowned panel of scientists selected by EPA concluded there was no justification to implement such remedies.
- Triumph, Idaho has the dubious distinction of being ranked by EPA as the most hazardous Superfund site in history due to elevated lead-in-soil concentration. The residents there have blood-lead levels below the national average.

the GAO report reviewed whether the consideration of externalities affected the use of renewable energy, such as wind, solar or geothermal power. The report also reviewed how states consider externalities in planning for electricity needs.

Examples of the uncontrolled costs of residual pollution emissions include expenditures to remedy the health and environmental impacts.

According to a number of sources in various sectors of the electricity industry, the reason why external costs have had no effect on renewables is because "electricity from renewable energy usually costs so much more than electricity from fossil fuels that externality considerations do not overcome the difference," the GAO report said.

The sources, which included Department of Energy officials, representatives from state agencies in New York and California, and laboratory officials, said "they were not aware of any instances in which the consideration of externalities made a difference in the fuel source selection," the report said. Utility officials in California, which according to GAO produces more electricity from renewables than any other state, could not provide GAO with any examples in which the consideration of externalities made a difference in the acquisition of renewables.

Price Rules

Price is the biggest factor working against renewables as a fuel source, the report said, citing a June 1994 study by the National Renewable Energy Laboratory. The study cited two cases in which renewables were selected, but both involved expansion of existing geothermal and hydroelectric projects' capacity, "which resulted in a competitive price," the GAO report said.

The results of the study, which analyzed data from 16 states on bids that were released in 1993 and open to providers of electricity from all types of fuel, showed that bidding results announced for 3,583 megawatts of power resulted in the selection of only 55 megawatts [or 2 percent] for renewable fuel sources at these two projects. Externalities were "secondary considerations," GAO said, citing the NREL study.

Another reason why externalities have not affected selection of renewables is because "there has been a limited need for additional electrical capacity since states began considering externalities," the GAO report said. Consideration of externalities is usually limited to the planning process for developing new capacity, and according to sources interviewed by GAO, "the country has not experienced much of a need for new electrical capacity since the first state began considering externalities in 1989."

As a result, "electricity produced from renewable energy has generally been introduced through some special program, such as a federally legislated requirement or state set-aside program, rather than under direct competition with fossil fuels," the report said. Both California and New York state have set-aside programs that "offer an alternative that ensures recognition of the attributes of renewable energy, such as environmental benefits," the report said, citing another NREL study from September 1993.

States vary in considering externalities, the report found. Of the 50 states and the District of Columbia, 16 states assign a quantitative value to externalities, such as dollar costs, and nine states and the District of Columbia treat externalities qualitatively, by using systems such as a subjective ranking for anticipated environmental impacts. The remaining 25 do not have requirements for externalities.

Fossil Fuel Technology Makes Headway

Refinements in fossil fuel technology in addition to environmental regulations, also have contributed to the limited impact of externalities, GAO found.

"New technologies have reduced the adverse environmental effects of fossil fuels. Furthermore, renewables often are compared to new fossil fuel generating facilities, which tend to be environmentally cleaner than older ones as a result of recent environmental requirements," the report said. Industry's compliance with these requirements has helped internalize these environmental costs, thus reducing external costs, the report added.

Copies of the GAO report, *Electricity Supply: Consideration of Environmental Costs in Selecting Fuel Sources*, can be obtained by calling (202) 512-6000. Fax (301) 258-4066. The report is number GAO/RCED-95-187.

Superfund

EPA OFFERS DRAFT OF LONG-AWAITED STUDY ON LEAD TO HOUSE SUPERFUND SUBCOMMITTEE

An Environmental Protection Agency official told a House panel May 23 EPA intends to release a final draft of a long-awaited lead study in August 1995.

Tim Fields, deputy assistant administrator in EPA's Office of Solid Waste and Emergency Response, also offered a draft version of the incomplete study to the House Commerce Subcommittee on Commerce, Trade, and Hazardous Materials.

Fields was responding to charges from a previous panel that EPA has not been forthcoming with their study evaluating the impact of soil lead abatement on blood lead levels in children in urban environments.

Craig Tarpoff of the Superfund Coalition Against Mismanagement, based in Colorado, told the panel that soil removal does not significantly reduce lead-related health risks. He charged that EPA has refused to release its "Three City Lead Study" because the study has "proven" that soil removals are not effective. He added that EPA has spent $15 million on the study since it began in 1987.

Fields' testimony follows the March 16 comment of Elliott Laws, EPA assistant administrator for solid waste and emergency response, that the report had never been finalized because universities conducting the studies used different testing methodologies. According to Laws, "we have not been able to reconcile the three studies." (52 DEN A-10, 3/17/95).

Preliminary Findings

According to Fields, preliminary findings of the report indicate that the blood lead levels in the children studied were reduced when the exposure pathways for lead-laden dust were interrupted, and when soil abatement occurred in areas of initially high soil lead levels. The study also has shown that the abatement where lead concentrations were initially near the EPA soil screening level may have little impact on blood lead levels, according to Fields.

The agency's Office of Research and Development is conducting further analyses, which will be completed by August 1995 according to Fields. He said a subsequent peer review will be conducted, and if that concludes that no further analysis is needed, the report will be released in final form by January 1996.

During the hearing on superfund remedy selection and risk assessment issues, Fields said EPA is elevating the role of cost considerations when evaluating remedies, and also is giving more consideration to scientific issues. The hearing is expected to be the last before a specific piece of legislation is introduced for consideration.

Letter To Bliley On EPA Lead Policy

Meanwhile, a status report on the Three Cities Study also was contained in a May 18 response to a written inquiry on EPA's soil lead policy and activities by Rep. Thomas J. Bliley (R-Va), chairman of the full House Commerce Committee.

In the May 18 letter, signed by Laws, EPA assistant administrator for solid waste and emergency response, the timeline for issuing the report was provided.

EPA also said in the letter that it would release data associated with the study at the same time the report is issued or shortly thereafter. However, the agency added: "Confidentiality considerations will require that some of the data be masked."

In addition, EPA addressed suggestions that specific risk assessments and cost-benefit analysis should be required prior to lead-containing soil abatements be conducted. According to EPA, site-specific risk assessment is conducted at superfund sites, and the agency is "exploring approaches to the incorporation of cost-benefit analysis into its decision-making process" at superfund sites.

The agency said that while cost-effectiveness is targeted during cleanups, some benefits such as loss of intelligence due to lead exposure are hard to quantify. In addition, because a number of different views on the subject exist and "available tools" are lacking, "we believe it would be premature to require cost-benefit analyses on a site-specific basis."

Finally, the letter provided an update on agency soil lead guidance. In that update, the agency said that the 400 parts per million screening level that was referred to as a preliminary remediation goal is an error that will be corrected in the final version of the document.

Regulatory Reform

FURTHER REVIEW OF EPA RULES PLANNED AFTER WHITE HOUSE ANNOUNCES ELIMINATION

The Environmental Protection Agency will continue reviewing its rules with an eye toward eradication or modification even after the White House announces which federal regulations it will eliminate, the EPA deputy administrator said May 23.

In the first phase of the Clinton administration's weeding out of obsolete or unnecessary regulations, EPA will cut about 10 percent of its rules, agency Deputy Administrator Frederic Hansen said. He told a House panel that in a second phase of this work, EPA further would review rules flagged but not immediately eliminated during the first phase. The agency will study them to decide whether these regulations should be modified or deleted, he said.

Hansen spoke at a hearing on the EPA budget for fiscal 1996 held by the House Appropriations Subcommittee on Veterans Affairs, Housing and Urban Development, and Independent Agencies.

EPA Administrator Carol Browner told the subcommittee the White House in early June is expected to announce cuts in *Code of Federal Regulations* pages. She declined to give examples of the environmental rules that may be eliminated, saying the rules EPA has recommended for eradication now are undergoing interagency review.

President Clinton has directed the Executive Branch to give him a list by June 1 of regulations that will be eliminated or modified as part of the administration's government reinvention effort (44 DEN A-11, 3/7/95).

Browner said the regulatory purge would take place through the notice-and-comment rulemaking process under the Administrative Procedures Act. EPA will propose getting rid of regulations, gather public comments, then issue a final rule that will eliminate sections of the CFR, she explained.

Subcommittee Chairman Jerry Lewis (R-Calif) asked Browner how much it would cost EPA to delete regulations. She was unable immediately to provide this information. Browner added that the process "is top priority for us."

EPA Priorities

At the hearing, Lewis probed EPA officials regarding the agency's regulatory priorities.

The California representative was critical of a report EPA provided to the House Appropriations Committee regarding how the agency establishes its priorities. The committee's report accompanying the fiscal 1995 appropriations bill for VA, HUD, and independent agencies instructed EPA to describe its procedures for ranking its priorities, giving the agency until Feb. 1, 1995 to do so.

The committee report said, "EPA has chosen to fund certain activities at the expense of statutory and court-ordered mandates. While there is no doubt that these activities are worthwhile, it is a question of how

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TESTIMONY OF CRAIG A. TARPOFF

Co-Chairman, Superfund Coalition Against Mismanagement
Alderman, City of Granite City, Illinois

BEFORE

THE SUBCOMMITTEE ON
WATER RESOURCES AND THE ENVIRONMENT

COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE
U.S. HOUSE OF REPRESENTATIVES

Washington, DC

June 21, 1995

Introduction

Mr. Chairman and members of the committee, my name is Craig A. Tarpoff. I wish to thank you for this opportunity to address the Superfund Law and how it is hurting the environmental and economic health of dozens of communities like mine. I am here before you today as a representative of both the City of Granite City, Illinois, in my capacity as City Alderman, and as Co-Chairman of the Superfund Coalition Against Mismanagement.

My town of Granite City has the unfortunate distinction of being a Superfund community. It is a member of the Superfund Coalition Against Mismanagement, a national coalition of Superfund communities like Granite City which are trying to rid themselves of the Superfund burden. I am also a member of the Society for Environmental Geochemistry and Health and a past participant in discussion groups regarding the Department of Housing and Urban Development's lead-remediation policies. I was also present at Research Triangle Park for EPA's release and discussion of their $15 million "Three-Cities Study."

The Superfund Coalition Against Mismanagement banded together in the Fall of 1992 in Aspen, Colorado when the U.S. Environmental Protection Agency hosted its infamous

"Panel of Experts" forum to debate the efficacy of EPA's Superfund cleanup programs in Aspen. At the urging of Mayor Zaitz from Leadville, Colorado, representatives from about two dozen communities like mine came together in Aspen -- at their own expense -- to discuss the creation of a small coalition concerned about solving their Superfund problems. As we shared our experiences, it became clear that we were all victims of tremendous mismanagement problems plaguing the EPA. We incorporated the non-profit coalition in Colorado and Pennsylvania, with the express intent of affecting reform of Superfund and the EPA's soil/lead policies which have been hurting all our communities.

Today, our coalition includes several hundred members from more than 30 Superfund communities in about a dozen different states, along with EPA contract scientists, elected officials and non-voting industry representatives. We receive funding through individual dues and in-kind contributions. The executive committee of the coalition, which governs its activities, includes elected public representatives from communities in Colorado, Illinois, Pennsylvania and Utah.

Superfund Often Harms Local Communities and the Environment

We have found that the remedies which EPA selects—and the faulty methodologies they use to select the remedies—often harms the community which EPA is supposed to protect. Our coalition's experiences revolve around how EPA has invented and misused its so-called lead-in-soils policies under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and the Resource Conservation and Recovery Act (RCRA). This policy is being used to environmentally "redline" communities across the country, and divert scarce dollars towards entirely ineffective cleanup programs. The way EPA's Superfund managers have misused this policy and hurt local communities' environmental quality and economic well-being provides a useful case study on what's wrong with Superfund.

The Granite City, Illinois Experience—It Can Happen Anywhere

My involvement with Superfund began in early 1990 when the U.S. EPA Region V released their preferred cleanup plan for the NL/TaraCorp site in Granite City. The removal of soils from 55 blocks and 1600 residential properties first seemed to be a major undertaking, considering the local community had never regarded lead poisoning to be a problem. A Region V toxicologist had announced that nine out of 10 children under the age of six in the cleanup area were *at risk* of having blood lead levels over 15 micrograms/deciliter.

At a public hearing, I asked the EPA toxicologist what percent of the children under six years of age would be at risk of having acute blood lead levels (over 15 micrograms/deciliter) outside of the designated cleanup area. When she told me that six out of 10 children would be at risk of being blood-lead poisoned I became furious since 60 percent of Granite City's children would be at risk. At that time, I couldn't believe that a public health officer would advocate a cleanup which ignores most of the population at risk.

I then joined the Society for Environmental Geochemistry and Health and began attending the Trace Substances conferences. This afforded me the opportunity to make contact with the Nation's top lead exposure scientists and lead toxicologists.

I quickly realized that what the EPA toxicologist had said, while not a lie, certainly did not represent a realistic estimate of the number of children who would have elevated blood lead levels (purported caused by the "elevated" soil/lead concentrations within the cleanup area). EPA's pronouncements were a deliberate attempt to raise the level of fear in our community and garner support for EPA's soil removal policies. I later discovered that EPA's misrepresentations are analogous to the old saying, "we are all at risk of dying each time we drive an automobile." I also discovered that Granite City's soil-lead concentrations are at or below those levels found in most major metropolitan areas or adjacent to highways.

In an attempt to bolster the "scientific" credibility of the soil removal program at the NL/Taracorp site, the EPA employed the use of its infamous IUBK Biokinetic computer model. This is the computer model which is supposed to utilize site-specific data to predict

the blood lead levels of children, as a function of lead-in-soil concentrations. Of all the input variables in the computer model, only the air-lead concentrations were site specific for the Granite City analysis. The dietary lead intake levels were taken from FDA market basket values from the early 1980's when lead solder was still used to seal vegetable cans. The early 1980's values are, in some cases, three times as high as the levels found in 1990, when the model was run. The contribution of lead based paint used in the model was Zero, and EPA even issued a statement indicating that paint surfaces were in good condition.

It is important to realize that the Granite City Superfund site is located in the oldest part of Granite City where the housing stock is 80 years old. Many properties here are rentals in varying types of condition. Over 75 percent of these residential properties test positive for lead paint inside or outside the home.

When the EPA project manager, Brad Bradley, was asked by the Granite City Alderman why a leaded paint value was not included in EPA's IUBK model, he had a very revealing response. The project manager explained that if EPA included the leaded paint input parameter, the computer model would call for a 200 parts-per-million --rather than a 500 parts-per-million--soil cleanup threshold. EPA was essentially admitting that the model would predict that removing more soil would reduce exposure to lead paint! This is like predicting that automobile deaths will decrease if most car tires were white-walls.

EPA's run of the IUBK model for Granite City incorporated two scenarios to show what blood lead reductions could be expected by reducing soil-lead concentrations. The model predicted that a blood lead reduction of 3.5 micrograms/deciliter for each 500 ppm reduction in soil-lead levels, and 7 micrograms/deciliter reduction per 1,000 ppm reduction in soil-lead levels. It must be noted that these predicted blood lead reductions are about 10 times higher than any measured during EPA's infamous "Three-Cities Study". The average soil lead concentrations in the Boston "Three-Cities" properties was 1860 ppm, over twice the average soil-lead concentrations found in Granite City Of the 1,600 residential properties proposed for EPA's soil removal programs, only 265 have soil lead levels over 1,000 pm.

It is unclear whether EPA's manipulation of the IUBK computer model is a deliberate attempt to exaggerate the lead-in-soil/blood-lead relationship, or if it is the result of an

incompetent staff attempting to use a "black box" computer model that has never accurately predicted blood lead concentrations. In either case, this creative pseudo-science is having a devastating affect on Granite City's environmental and economic health --- and it threatens every other community in this country whose homes contain leaded paint.

For the soil removal boondoggle in Granite City, EPA originally intended to place all of the soils removed from residential properties atop an existing lead slag pile adjacent to Granite City residences. (This is enough dirt to cover seven football fields 35 feet high.) The existing lead slag pile---which has no cap or liner---tests as high as 300,000 ppm lead, and covers a city block a short distance from the Mississippi River. After the Illinois EPA completed the initial site reports for this slag pile, the State was concerned with evidence of leaching and groundwater contamination. However, U.S. EPA assumed control of the site and ignored these reports. For years the EPA refused our requests to conduct additional groundwater testing.

At a June 1992 hearing before the Subcommittee on Investigations and Oversight, House Committee on Public Works and Transportation, Jo Lynn Traub, acting associate division director for Superfund in EPA's Region V, stated that there was NO EVIDENCE of any groundwater contamination at the Granite City Superfund site. Six months later, after additional testing, EPA released a report that showed considerable groundwater contamination around the waste pile. One sample showed lead contamination of the groundwater at over 30-times the accepted level...and this is a groundwater aquifer 15 feet below the waste pile connected to the nearby Mississippi River.

Today, after ten years of site control and three years of knowing about the groundwater contamination, EPA still has announced no plans for remediating the waste pile or the groundwater. This is a classic example of how EPA's preoccupation with dirt removals overshadows their concern for real environmental hazards. While EPA wastes its resources on dirt----contrary to most credible scientific analyses----environmental quality suffers. And as EPA focuses on dirt quality, the agency has effectively hurt housing values and made it difficult to sell or refinance our homes.

Last year, U.S. EPA began residential soil removals adjacent to the lead waste pile. Granite City argued that until the pile is addressed, either removed or capped, no residential

properties should be remediated. This is because the heavy construction equipment needed to remove or cap the waste pile will create considerable dust, and recontaminate any properties already cleaned. Nevertheless, EPA refuses to acknowledge the advantage of addressing the waste pile (containing lead concentrations as high as 300,000 ppm) and instead focuses on residential dirt removals. EPA seems more concerned with promoting its scientifically fallacious lead-in-soil policies than it is with improving environmental quality.

Almost every recognized study conducted over the past several years has cast considerable doubt on the benefits of soil removal as the primary means by which blood lead levels are reduced. But most alarming, is the rate of recontamination of clean soils that occurs in urban settings. At the Baltimore sites studied in EPA's "Three-Cities Study", preliminary findings indicate that soil was recontaminated with a mean increase of 132 ppm in less than two years.

Considering the large number of homes having exterior leaded paint in the Granite City site, we in Granite City are likely to experience a recontamination similar to what EPA has seen in Baltimore. The Baltimore study indicates that in ten years many yards to be remediated in Granite City will have soil-lead concentrations over 500 ppm! This means that communities like Granite City will forever be held hostage to Superfund, as the EPA will need to constantly re-remediate!

Knowing that the EPA has no jurisdiction regarding leaded paint, the City of Granite City began negotiating with the potentially responsible parties to develop a cleanup plan that would address all of the pathways of lead exposure (paint, dust, leaded water pipes, soils). This kind of "multi-pathway" cleanup plan would insure that clinically significant blood-lead reductions could occur, and that soils would be less likely to be contaminated by paint. This plan requires EPA to show flexibility in their chosen soil cleanup level of 500 ppm. Project manager Brad Bradley indicated to me that the removal of leaded paint would be beneficial, but the potentially responsible parties at the site must still be required to abide by EPA's lead-in-soil policies.

EPA's Lead/Soil Policies Threaten to Harm Thousands of Communities

As a member of a national coalition of Superfund communities, I know that EPA's incompetence, misdirected cleanup policies and weird science are found across the country. From Palmerton, Pennsylvania to Triumph, Idaho, EPA uses its lead/soil policy to justify Superfund. Our coalition has witnessed these EPA atrocities in at least a dozen different states. Most recently, EPA proposed part of Bossier City, Louisiana for the Superfund program, in part because of "elevated" soil-lead concentrations. Mr. Chairman and members of the committee, you must realize that any neighborhood with soil-lead concentrations at 400 ppm or more can become a Superfund site. Ambient soil-lead concentrations of 1,000 ppm or more are commonplace in the inner city. The average soil-lead concentrations of around the interstate highways is 1,100 ppm. If EPA's soil-lead policy is not stopped, hundreds of communities will be redlined under Superfund, even though those community residents are not at risk. A policy this wasteful, with such devastating effects must be stopped immediately---with or without the reauthorization of Superfund.

The EPA's misrepresentation of health risks caused by soil lead levels has had devastating effects: redlining, loss in assessed valuation, decline in redevelopment activity, and destruction of infrastructure. Communities have a right to demand that Superfund activities result in real reductions in health risks, and EPA is unable to satisfy this need.

Reforming Superfund:

Employ the HUD Lead Policy
Rescind the Soil/Lead Policy
Authorize Elective De-Listing

There should be no question as to why we have no confidence in EPA's ability to develop and implement sound environmental policy under Superfund. As an elected representative on the city council of Granite City, my responsibilities include legislation and oversight. Every municipal department is subject to oversight, and new legislation is regularly enacted to improve public services.

It appears that EPA's Superfund program is not subject to the same kinds of checks and balances needed to ensure sound environmental policy. EPA circumvents constitutional law by avoiding the rule-making process, and issues "directives" or "guidance" to implement policy---immune from public comment, scientific review or Congressional oversight. The very structure of EPA---ten regional, self-funding Superfund kingdoms with accountability to no one---has led to inconsistency, incompetence, and of course the wasteful spending of hundreds of millions of dollars.

EPA and some environmental groups are quick to point out that industry is footing the bill for Superfund. But this is an overly simplistic "public-pleasing" position. Superfund's enormous costs can not be absorbed by industry, they are past along to us the consumer in the form of price increases, lost retirement savings and higher insurance premiums. As a consumer, I am willing to share the cost of providing a safe environment for future generations, but a safe environment does not appear to be the goal or Superfund or its managers.

There is no question that Superfund reform is needed. I feel the issue of justified spending can be resolved by requiring cost-benefit/health benefit tests. By requiring Superfund to deal with real risks, rather than the "hypothetical" risks invented by Superfund toxicologists, more environmental cleanups will be done in less time, with less litigation, with less money, achieving a safer environment.

The Housing and Urban Development Title X Precedent

A good example of the results of cost-benefit tests is the Title X guidelines developed for lead abatement in HUD housing. The creation of these health based standards for exposure in leaded paint, dust and soil were required for the Residential Lead-Based Paint Hazard Reduction Act of 1992. EPA's Office of Prevention, Pesticides and Toxic Substances recognized the questionable benefit of removing lead contaminated soils. Rather than misdirect remediation funds, bare soil removals at HUD housing is not required until lead levels exceed 4,000 ppm. This assures that lead based paint and associated dusts are removed, resulting in a real reduction in health risk and a safe environment.

EPA's Soil/Lead Policy: A Policy Which Must be Rescinded

In comparison to the HUD policy, Superfund's 1994 Lead-in-Soils Directive --- the policy which allows EPA to create Superfund sites practically anywhere --- sets a trigger level of 400 ppm lead in soil. Above this level the crushing wheels of Superfund begin their slow, wasteful process. I feel confident in saying there isn't a city or Congressional district in these United States where I can't find soils that exceed 400 ppm in lead concentration. The federal government has a hard time in explaining why its housing stock is subject to a soil-lead standard which is 10-times less that the Superfund standard. HUD soil-lead standards are health-based, Superfund soil-lead policies are invented by a computer model which has never been validated and has never been subject to scientific peer review and public comment. Most interesting, is that Superfund's soil-lead computer model has never accurately predicted a population's blood-lead levels, based on soil-lead concentrations.

We recommend that Congress reforms the policy-generating methods employed by Superfund. When any policy puts in jeopardy the value of property or assets of the innocent victims of Superfund, that policy must be subject to public review and comment and must not circumvent the public review through the issuance of "directives" or "guidance".

For these reasons, we urge the Congress to rescind EPA's lead-in-soils policy in lieu of

adequate public review and comment. The lead in soils policy must be rescinded with or without reform of Superfund.

Authorize Elective De-Listing for Local Governments

As mentioned, the fundamental problem with Superfund is that it provides a single agency of the federal government with practically unlimited, unchecked power. Under Superfund, EPA creates a self-funding bureaucracy at the regional level practically immune from Congress' budgetary oversight. Superfund managers take on the roles of being judge, jury prosecutor and executioner. To balance this program, we strongly recommend the establishment of *Elective De-Listing*.

Under this concept, EPA can be required to develop and implement cleanup plans within 10 years of placing a site on the National Priorities List. If EPA fails to complete a cleanup or agree to a cleanup plan within 10 years of listing a particular site, any state or local government affected by the site's listing could unilaterally call on a federal agency---other than EPA---to review either the current condition of the site or review an alternative cleanup plan advocated by the local government entity. If the federal agency determined either that the current condition of the site posed no substantial health risk, or determined that the alternative cleanup plan would effectively reduce real health risks at the site, then EPA would be required to either de-list the site or agree to adopt the cleanup plan and de-list the site within a specific time period. For Superfund sites which are not fund-directed, alternative cleanup plans advanced under such an elective de-listing provision must be jointly agreed to by the local government entities and the potentially responsible parties involved at the site.

With this alternative, local communities would have the authority and incentive to work with potentially responsible parties to quickly find solutions to environmental problems. This authority would be *"elective,"* in that it can be exercised voluntarily by local communities. Such an approach also allows communities to more directly affect the issues of remedy selection, allowable risk, etc. Elective de-listing creates a new balance of power under Superfund, and effectively cuts through the many controversial policies such as joint and several liability or retroactive liability.

Under this arrangement, EPA would no longer be able to hold local communities hostage. Community involvement would become a real part of Superfund, compared to EPA's current community involvement activity which amounts to tokenism. This type of plan would force cooperation between potentially responsible parties, EPA, and state and local governments. Oversight would be automatic; EPA would no longer be afforded the opportunity to drag unnecessary remedial activities on for decades, and communities like Granite City would have an alternative to litigation.

We all agree that changes are needed to improve Superfund. Care must be taken to insure that funding is available when remedial activities are required. Common sense, cooperation and compromise must become part of Superfund or the objective of the program will not be met.

It is essential for Congress to realize that no matter what Superfund reforms are eventually instituted, that such reforms---including elective de-listing---must apply to communities like mine which are already Superfund sites.

Mr. Chairman and members of the committee, thank you for your time and consideration of my testimony. I would be happy to answer any questions you may have.

Tarpoff: EPA policies harmful

Alderman before Congress again

By Bob Slate
Staff writer

For the second time in a month, Granite City Alderman Craig Tarpoff has been asked to testify before Congress about inadequacies at the U.S. Environmental Protection Agency.

Tarpoff was scheduled to testify today, Wednesday, before the U.S. House of Representatives' Transportation and Infrastructure Committee's subcommittee on Water Resources and the Environment.

On May 23, Tarpoff told the House Commerce Committee's subcommittee on Commerce, Trade and Hazardous Materials that U.S. EPA's policies with regard to lead actually hurt the environment and economic health of dozens of communities.

Tarpoff, a member of the Society for Environmental Geochemistry and Health and a member of the executive board of the Superfund Coalition Against Mismanagement (SCAM), made a written copy of his testimony today available to the *Press-Record Journal*.

"We have found that the remedies which EPA selects — and the faulty methodologies they use to select the remedies — often harms the community which EPA is supposed to protect," Tarpoff is to testify.

Tarpoff

He said that members of SCAM, a coalition of several hundred members from more than 30 Superfund communities in about a dozen different states, have found that EPA's policies — especially those associated with lead in soil — have been "invented and misused."

"This policy (lead in soils) is being used to environmentally redline communities across the country and divert scarce dollars toward entirely ineffective clean-up programs," Tarpoff said.

"The way EPA's Superfund managers

(See TARPOFF, Page 9A)

Tarpoff

(Continued from Page 1A)

have misused this policy and hurt local communities' environmental quality and economic well-being provides a useful case study on what's wrong with Superfund."

In Granite City, EPA has proposed spending more than $30 million to remove lead-contaminated soil from 1,600 residential properties in a 55-block area. The agency's plan calls for the contaminated soil to be added to an existing lead pile directly above an aquifer that feeds the Mississippi River. The lead concentration in the pile tests as high as 300,000 ppm for lead.

Although groundwater contamination of up to 30 times acceptable levels has been found beneath the 290,000-ton pile, EPA has no plan to remove the pile.

Of the 1,600 residential properties targeted, only 265 have lead concentration levels of more than 1,000 ppm.

The EPA came up with a residential soil cleanup threshold of 400 parts of lead per million by use of a biokinetic uptake computer model. The computer model was designed to use site-specific data to predict the blood-lead levels of children as a function of lead in soil concentration.

But, Tarpoff said, the only data that was site-specific was air-lead concentrations. The model estimated that lead coming from lead-based paint was not a factor — even though most of the housing stock in the cleanup area is 80 years old and more than 75 percent of the properties test positive for lead paint either in or outside the home.

When EPA Project Manager Brad Bradley was asked why the leaded paint value was not included in the computer model, he said that the program would have called for a cleanup level of 200 ppm.

"EPA was essentially admitting that the model would predict that removing more soil would reduce exposure to lead paint," Tarpoff said. "This is like predicting that automobile deaths will decrease if most car tires were whitewalls."

Tarpoff said the EPA's manipulation of data is either "a deliberate attempt to exaggerate" the relationship between the lead in soil and blood lead levels or "the result of an incompetent staff attempting to use a black-box computer model that has never accurately predicted blood lead concentrations."

Tarpoff said the Granite City scenario could easily be played out elsewhere in the country.

"In either case, this creative pseudo-science is having a devastating effect on Granite City's environmental and economic health — and it threatens every other community in this country whose homes contain leaded paint," he said.

In fact, he said, EPA's lead in soil policy would require a cleanup of every major highway in the country — where concentrations average about 1,100 ppm — and in most urban areas — where lead concentrations of 1,000 ppm or more are commonplace. Tarpoff said EPA's lead in soil policy has resulted in "redlining, loss in assessed valuation, decline in redevelopment activity, and destruction of infrastructure."

"A policy this wasteful with such devastating effects must be stopped immediately — with or without the reauthorization of Superfund," he said.

He said that, while EPA focuses its attention on cleaning up dirt, "real environmental hazards" are largely ignored.

Granite City has attempted to negotiate with the parties potentially responsible for the contamination to develop a cleanup plan that would address all of the pathways of lead exposure, including paint, dust, leaded water pipes and soils.

"This kind of multi-pathway cleanup plan would ensure that clinically significant blood-lead reductions could occur," Tarpoff said. "EPA seems more concerned with promoting its scientifically fallacious lead in soil policies than it is with improving environmental quality."

Tarpoff said the Superfund law needs to be reformed.

"By requiring Superfund to deal with real risks rather than the hypothetical risks invented by Superfund toxicologists, more environmental cleanups will be done in less time, with less litigation, with less money, achieving a safer environment," he said.

Survey of Lead Exposure Around a Closed Lead Smelter

Renate Kimbrough, MD*; Maurice LeVois, PhD*; and David Webb, MS‡

ABSTRACT. *Objective.* To test the hypothesis that elevated lead in soil is positively correlated with blood lead (BPb) levels in children in an urban population surrounding a closed lead smelter, a US Environmental Protection Agency Superfund clean-up site was surveyed.

Method. A total of 827 volunteers including 490 children under 6 years of age participated. A questionnaire was administered. Blood lead was determined as was lead content of samples of house dust, soil, paint, and water of the participants' homes.

Results. The arithmetic mean venous BPb in 490 children between 6 and 72 months of age was 6.9 μg/dL (0.33 μmol/L) range 0.7 to 40.2 μg/dL (0.03 to 1.94 μmol/L). The BPb of 78 (16%) children in this group was ≥ 10 μg/dL (0.48 μmol/L). Based on multiple regression modeling, lead in house dust accounted for 18% of the variance in BPb. Lead in paint together with the condition of the house were the main contributors to the dust lead variance (26%) with soil lead accounting for an additional 6%. Lead in paint alone accounted for 3% of the BPb variance. Lead in paint together with the condition of the house accounted for 12% of BPb variance, and lead in soil accounted for an additional 3%. Factors other than environmental lead such as education of parents, household income, and behavior were associated with BPb levels.

Conclusions. The mean BPb in children was below the present level of concern of the Centers for Disease Control and Prevention. Children with BPb of ≥ 10 μg/L (0.48 μmol/L) tended to live in poorly maintained older houses. Based on these findings lead in soil and paint in well-maintained homes contributed little to the lead exposure of children. *Pediatrics* 1995;95:550–554; *lead exposure; lead smelter; survey; Superfund; lead paint.*

ABBREVIATIONS. EPA, Environmental Protection Agency; BPb, blood lead; CDC, Centers for Disease Control and Prevention; XRF, radiographic fluorescence analyzer; SAS, Statistical Analysis System.

Under the present "Superfund" law, the US Environmental Protection Agency (EPA) is not required to conduct health studies to determine whether a contaminated Superfund site should be remediated. The decision by EPA to take action is based on environmental data such as lead levels in soil and on theoretical calculations of risk and exposure. In the community where the study reported here was performed, many residents were not persuaded by the EPA calculations of risk, and others were concerned about their health. Both groups wanted to know whether the EPA risk assessment was realistic and demanded a "health study."

The industrial site, a closed lead smelter, is located in a mixed industrial and residential area in Granite City, IL. It is one of 41 National Priority List or Superfund hazardous waste sites in Illinois. Industrial lead operations began in 1895. Battery recycling began in the 1950s. The smelter was closed in 1983 and, in a preliminary site assessment in May 1983, it was estimated that 200 000 tons of lead waste were present at the site. Before the present study, the site had been evaluated by federal and state environmental and health agencies. Soil samples collected on the industrial site in 1988 contained lead in concentrations ranging from 1500 to 48 000 ppm (mg/kg). Lead concentrations in samples from residential yards at varying distances from the site ranged from 106 to 9493 ppm (mg/kg). Ambient air lead levels taken from monitors closest to the site (when the smelter was active) regularly exceeded the 1.5 $\mu g/m^3$ National Ambient Air Quality Standard for lead. Air levels have not exceeded National Ambient Air Quality Standard since the smelter was closed.

In 1991, based on high soil lead levels, the US EPA proposed a clean-up area extending 0.8 to 1.0 km from the smelter. The present study was conducted to determine the blood lead (BPb) levels in the population residing within and outside this area for another 3.2 km around the designated clean-up area. This report describes the blood lead levels in children between 6 months and 6 years of age.

METHODS

Study Population

A population census of the proposed National Priority List clean-up site and the surrounding area was conducted in July 1991 to identify all households with children under 6 years of age. The census included all residential units within the proposed Superfund clean-up site and an additional area extending 3.0 km in all directions from the border of the proposed Superfund clean-up site. A suitable comparison group that was not a continuum of the EPA proposed clean-up area could not be identified in the immediate urban area.

Trained census takers recorded age, gender, and length of residence of all household members for every residential unit in the defined area. Families with children under 6 years of age who had lived at their present address for at least 90 days were invited to participate in the study.

All adult members of the participating households signed

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Southern Illinois School of Medicine approved consent forms giving permission for themselves and/or their minor children to provide venous blood specimens, to measure lead in soil, house dust, water, and paint from the residence and for a detailed interview of the head of the household. Blood was collected at the local hospital by trained pediatric phlebotomists. The interviews were administered by a trained interviewer at a centrally located office using a precoded questionnaire. Questions were asked about the demographics of each household member; occupation, income and education of the parents; history of smoking for all household members; the behavior of the children, time at home and outdoors, play areas, number of weekly baths, and alternative lead exposures. Information about age of the house, presence of air conditioning, and recent repairs or renovations were also obtained. Interview information, blood specimens, and environmental samples were collected from August 22 to September 18, 1991. The teams collecting the environmental samples did not know the results of the BPb analyses.

Blood Sampling

The BPb analyses were performed by the Centers for Disease Control and Prevention (CDC) using a published method[1] with a limit of detection of 0.6 μg/dL (0.03 μmol/L). Duplicate samples and quality control samples were also collected and analyzed. Within 1 week following the blood specimen collections, soil, house dust, and drinking water samples were collected from each residence, and in situ paint analyses were performed. All environmental sampling and analyses were performed by EPA-paid trained contractors.

Soil Sampling and Analysis

The yards around the houses were very small. Play areas were identified on each property. At least 10 locations were sampled with a corer of no less than 2 aliquots per location at a depth of 1 inch (2.54 cm) and composited. Debris and leafy vegetation was removed. Unless children played close to the house, soil samples were taken at least 1 foot (30 cm) from the house per story to avoid the drip line. Soil samples were analyzed by EPA method 6010 using inductively coupled argon plasma emission spectroscopy.[2] The limit of detection for lead in soil was ≥ 20 ppm (mg/kg). For the calculations one-half the limit of detection was used for nondetectable values. Only the dry weight soil lead levels are reported in this paper. Obvious chips of paint were removed from soil. Thirty-nine duplicate soil samples were analyzed.

Dust Sampling and Analysis

Interior surface dust was collected by using a Hoover brush vacuum cleaner, ½-horsepower, 2-amp motor. Dust samples consisted of a composite of at least three subsamples from an area adjacent to the main entrance, a floor area from the room most utilized by the study child, and a floor area of the child's bedroom. At least 1 m^2 per surface area was vacuumed three times. Dust samples were analyzed by EPA method 6010 using inductively coupled argon plasma emission spectroscopy.[2] The limit of detection for lead in house dust was ≤20 ppm (mg/kg). For the calculations, one-half the limit of detection was used for nondetectable values. To more accurately relate lead in dust to exposure a variable named "dust lead load" was calculated by dividing the dust sample weight by the surface area vacuumed and multiplying this ratio by the dust lead concentration.

Water Sampling and Analysis

The concentration of lead in tap water was determined in a first draw sample by graphite furnace atomic absorption.[3] The limit of detection for lead in drinking water was ≤2 ppb (μg/L); for the calculations one-half the limit of detection was used for nondetectable values.

Analysis of Paint

Lead in paint was determined in situ by a licensed contractor using a radiographic fluorescence analyzer. An XK-3 instrument manufactured by Princeton Gamma-Tech, Inc, was used. This instrument has a range of 0 to 10 mg of lead per cm^2. At each site three readings were made, and an average was calculated. In each room a reading was made on the woodwork and the painted wall. Up to 18 readings of walls and woodwork were taken from the main living area, the child's bedroom, and another frequently occupied area. Three readings/surface area for a total of 9 to 12 exterior readings were made on the front, back, and one side of the house. The XK-3 instruments measure lead paint concentrations up to 10 mg/cm^2. The amount of lead in paint above 10 mg/cm^2 was estimated by using the average weekly calibration time and dividing the test reading of 10 by the ratio of the time to obtain the reading over the average calibration time.

The condition of paint at the reading site was rated by the certified contractor for the inside of the house as intact = 1, slight peeling = 2, moderate peeling = 3, and extreme deterioration = 4. For the outside of the house three conditions were used: good = 1, fair = 2, and poor = 3.

For the XRF readings, the value 0.001 mg/cm^2 (one-half the limit of detection) was used for zero readings. Since intact paint is less likely to result in exposure, the XRF readings were transformed by multiplying each paint XRF reading by its surface condition C (C × XRF). An average was calculated over all condition × XRF readings per house separately for indoor and outdoor paint.

Ratings for the exterior condition of the house were missing for 59 houses (15%). The mean building condition score was assigned to these houses. Missing values for the building condition were not associated with any other variable.

Data Analysis Methods

Data from the census forms and the questionnaires were entered into electronic data files. Quality control was maintained by double entry of important data points.

Statistical analyses were done using the statistical analysis system (SAS) for the microcomputer.[4] Univariate statistics were performed using chi-square analyses for all categorical variables and two-tailed t tests for all continuous variables, both requiring a significance level of $P < .05$. A correlation matrix was calculated to determine what factors were associated with BPb as well as the degree of intercorrelation of independent variables. Blood lead values ≥ 10 μg/dL (0.48 μmol/L) were used to define the high BPb group for group comparisons. Positively skewed data were transformed to logarithms. Multiple regression and correlation modeling[5] was performed to identify variable(s) that predicted BPb, and to determine the independent influence of environmental lead measures on BPb.

RESULTS

Study Population

Based on the census questionnaires, 906 (17.6%) households had one or more children under 6 years of age who had lived at the residence for at least 3 months (Table 1). Of these households, 116 were disqualified because the family had moved or could not be contacted by phone, there were repeated visits to the home, inquiries to neighbors were made during the 3.5 weeks of the field study, or all children were >6 months or <6 years old at the time of the study. Thus, the final target population consisted of 790 households of which 355 households participated in the study (Table 1). A total of 266 (34%) households refused to participate, because they did not want to subject their child to a venipuncture or their children recently had had a BPb determination.

TABLE 1. Number of Households

	Number
Eligible households	906
Unable to contact	116
Final target population	790
Refused to participate	266
Missed appointments	169
Final household participation	355

Another 169 (21%) missed repeated appointments or could not be contacted to reschedule appointments. This resulted in an overall participation rate of 45% of those eligible.

The houses occupied by the participants and by families who refused to participate were scattered throughout the same neighborhood. To better relate distance from the closed smelter to the location of the participants' houses and the proposed EPA clean-up area, we created four regions roughly representing concentric circles around the closed smelter. Region I, a commercial area, was located closest to the smelter and contained few residences with 20 of 39 eligible families participating (51%). In the second concentric circle, Region II, 60% of the eligible households participated. In Region III, 53% of the households participated and 39% participated in the outer circle, Region IV. Region I extended roughly 0.8 to 1 km from the boundaries of the closed smelter in all directions. Regions II and III were also about 0.8 to 1 km in width. Region IV was 1.2 km wide.

Occasionally more than one family shared a household. A total of 230 families with one child, 106 families with two children, and 14 families with three or more children between 6 months and 72 months of age participated. Of the 101 non-white children under 6 years of age, 87% were African-American.

Blood Lead Levels

Results of BPb analyses are given in Table 2. The arithmetic mean BPb was 6.9 μg/dL (0.33 μmol/L), below the present CDC level of concern.[6] In the entire group of 490 children, 78 children (16%) had BPb levels of ≥ 10 μg/dL (0.48 μmol/L). Only 5 (1%) had BPb above the pre-1991 CDC level of concern of 25 μg/dL (1.21 μmol/L). The arithmetic mean age of all children under 6 years was 3.3 years, and the mean ages of the two groups of children with low and high blood lead levels were 3.2 and 3.3 years, respectively.

Among the 101 non-white children under 6 years of age, 19% had BPb ≥ 10 μg/dL. The arithmetic mean BPb of all white children <6 years was 6.8 μg/dL (0.32 μmol/L) and for the non-white children 7.4 μg/dL (0.35 μmol/L). There was no statistically significant difference in the mean BPb of these white and non-white children ($t = -1.1$, $P > .05$). The two groups were therefore combined in the analyses.

TABLE 2. Blood Lead Levels (BPb) in 6- to 72-Month-Old Children*

Total *N*	490
Males (%)	261 (53%)
Mean BPb	6.9 μg/dL (0.33 μmol/L) S.D (5.02)
Range	0.7–40.2 μg/dL (0.33–1.94 μmol/L)
Number	≥10.0 μg/dL (0.48 μmol/L) = 78 (16%)
	≥15 μg/dL (0.72 μmol/L) = 32 (7%)
	≥25 μg/dL (1.21 μmol/L) = 5 (1%)

* Eight children from five households with a mean BPb of 7.1 μg/dL (0.34 μmol/L) had moved within their immediate neighborhood and had lived at their present residence slightly less than 3 months at the time of the study. The limit of detection for the blood lead analyses is <0.6 μg/DL (<0.03 μmol/L). The range of the means at 6-month age intervals for children with blood lead levels of ≥10 μg/dL (0.48 μmol/L) was 13.6 μg/dL (0.66 μmol/L) at 6 to 12 months to 18.2 μg/dL (0.88 μmol/L) at 36 to 42 months. The range of the means at 6-month age intervals for children with blood lead levels <10 μg/dL (0.48 μmol/L) was 4.3 μg/dL (0.21 μmol/L) at 6 to 12 months to 5.9 μg/dL (0.29 μmol/L) at 30 to 36 months.

Environmental Lead Measures

Mean lead levels measured in soil, house dust, drinking water, and paint of the houses are given in Table 3. The majority of houses in this study were built between 1900 and 1960. The lead levels in the paint of many houses reflect the use of leaded paint during that period.

Soil

The mean soil lead level for the 338 analyzed composite soil samples from participant yards was 449 ppm (mg/kg) with a range of 37 to 3010 ppm (mg/kg) (Table 3). The concentration of lead in 39 split soil samples ranged from 106 to 1610 ppm (mg/kg). The average difference between the primary and the duplicate sample was 89 ppm (mg/kg), not a statistically significant difference.

Dust

Lead levels for 334 house dust samples are given in Table 3. Blood lead levels of children under 6 years of age were highly correlated with the lead dust load (the concentration of lead in dust/m^2 of area vacuumed) ($r = 0.42$, $P < .0001$).

Drinking Water

Lead in drinking water from 336 households was below the limit of detection of 2 ppb (μg/L) in 62% of the samples and 97% of the samples had levels below 15 ppb (μg/L), the present EPA action level. In 13 instances, levels of lead in drinking water were higher with a range of 15.4 to 95.5 ppb (μg/L). None of the study participants using this water had elevated BPb. The correlation between the log water measure and log BPb was very low ($r = 0.07$, NS).

Home Repairs

Among families with children under 6 years of age whose blood lead levels were <10 μg/dL (0.48 μmol/L), 192 (48%) had done some repair work on their house in the last year. In contrast, 44 (63%) of the families whose children had blood lead levels ≥10 μg/dL (0.48 μmol/L) had done some repair work on their house in the year before the study, a statistically significant difference ($P < .02$). The information was missing for 17 households.

Factors Associated With Blood Lead Levels

At the univariate level the following factors were positively correlated ($P < .01$) with an increase in the BPb of children <6 years old: dust lead load and concentration; composite soil lead; cigarettes smoked in the house per day; hours of outdoor play; baths per week; indoor paint lead; and number of smokers in household. The BPb were negatively correlated ($P < .01$) with parents' education, distance from the closed smelter, and parents' income. The BPb in children <6 years old were likely to be higher when their residence was in poor condition, lacked air condi-

TABLE 3. Lead in Environmental Samples: Dry Soil Composite, Dust, Water, and Paint

Environmental Sample	N	Mean Lead	Minimum	Maximum	Standard Deviation
Soil (mg/kg; ppm)	338	449	37	3 010	420
Dust by weight (mg/kg; ppm)	334	1 299	5.2	71 000	5 239
Dust by surface ($\mu g/m^2$)*	331	956	1.6	58 800	4 722
Tap water ($\mu g/L$; ppb)	336	3.4	<2	96	8
Indoor paint (mg/cm^2)‡	337	1.2	0	10.4	1.6
Outdoor paint (mg/cm^2)‡	345	5.3	0	31.2	6.4

* The "dust lead load" was calculated by dividing the dust sample weight by the surface area vacuumed and multiplying this ratio by the dust lead concentration. Surface area was not recorded for three samples.
‡ The paint values represent means for 18 indoor and 9 to 12 outside readings. Readings of zero were included in the calculations.

tioning, was rented, was under repair during the last year, and was older ($P < .01$).

In addition to univariate associations to BPb, many of these factors were significantly ($P < .01$) correlated and associated with each other. For example, soil lead levels were positively correlated with dust lead load; indoor lead paint; cigarettes smoked in the house; and the age of the home. As parents' education and income improved children were more likely to have significantly ($P < .01$) lower BPb. Lead in soil was significantly and positively associated with renting versus owning; absence of air conditioning and a poor rating of the "condition of the house."

Condition of the house was significantly and positively associated with the number of cigarettes smoked in the house, indoor and outdoor paint lead, soil lead, water lead, and dust lead ($P < .01$).

Distance to the closed smelter was correlated with several factors in addition to BPb. The older houses were located closer to the smelter. As distance from the smelter increased, home ownership increased and lead in house dust decreased. The number of houses with air conditioning increased and the condition of the houses improved. Number of cigarettes smoked and the number of smokers per house, correlated negatively with distance from the smelter. Income and education of the parents improved with distance from the smelter. Thus, distance from the smelter was strongly associated with socioeconomic factors which may have contributed to the variation seen in BPb levels.

Multivariate Analysis

Multivariate analyses were conducted to determine the independent influence of environmental measures, and demographic and socioeconomic factors on BPb in children <6 years of age. However, BPb, while not well accounted for by any set of variables in this study, was significantly associated with more than a dozen study factors. The interpretation of these associations is complicated, because most of the variables associated with BPb are also associated with one another.

Lead in tap water, house paint lead, recent repair work, and building condition accounted for 12% of the BPb variance (adjusted $R^2 = 0.12$). When composite soil lead measures were added, the adjusted R^2 increased slightly to an adjusted $R^2 = 0.15$. Thus, only 3% of the variance in BPb observed in this population was accounted for by soil lead. The contribution of dust lead was assessed by multiple regression of BPb with log dust lead load, and demographic and behavioral variables. The R^2 for all factors was equal to 0.37. The log dust lead load if taken alone accounted for about half of that variance ($R^2 = 0.18$).

Indoor and outdoor paint lead, and the condition of the building, accounted for 26% of the variance in dust lead. When the composite soil data were added, R^2 increased to 0.32, an increase of 6% in dust lead variance. Thus, paint lead and building condition accounted for about four times as much variance in dust lead as soil lead.

DISCUSSION

Children under 6 years of age ingest lead primarily through dust, but they may also ingest lead-containing paint chips and soil. In addition, children will be exposed to lead through food, water, and air. How much lead a child will receive from these various sources depends on behavioral variables and the child's nutrition.[7]

A general decrease in BPb observed in the United States pediatric population in recent years[7,8] has resulted from the decreased use of leaded gasoline and concomitant lower air lead levels.[8] Lead in food has also been reduced.[9] In spite of high lead levels in soil and in indoor and outdoor paint, many children in our study also had very low BPb. Even the group with elevated BPb had mean BPb levels that 20 years ago were representative of small children of the general population and were mostly below the CDC level of concern of 25 $\mu g/dL$ (1.21 $\mu mol/L$) in effect until October 1991.

Condition of the house, lead in paint, lead in dust, lead in soil, smoking of the parents, proximity to the closed smelter, education and income of the parents, and behavioral factors of the children predicted BPb in young children. Only about 37% of the variance could be accounted by the variables investigated in this study. Of the 37%, lead from soil made a very minor contribution, (an upper boundary of 3% of the variance) while the "condition of the house" and the amount of lead in paint were responsible for 11% of the variance. Weitzman et al.[10] recently demonstrated that removal of lead-contaminated soil around homes and interior loose paint removal resulted in a modest mean blood lead level decline of 2.44 $\mu g/dL$ (0.12 $\mu mol/L$) within an 11-month period in children <6 years of age. Since the decline was so small, the authors stated that removing lead-contaminated soil is not a useful clinical intervention for the majority of urban children. Our results support these findings. Our data show that elevated BPb is encoun-

tered in poorly maintained houses with high lead paint, lead dust, and lead soil values. Simply correlating BPb to individual environmental sources (e.g., soil) is a misrepresentation of the data. Overall, the environmental lead measures per se did not account for most of the variation in BPb of the children. Other variables such as the "condition of the house" and housekeeping practices played a major role.

Improving the condition of homes and educating the parents and caretakers about personal hygiene such as washing hands and cutting fingernails short, house cleaning, and pathways of lead exposure appear to be effective in reducing slightly elevated BPb and should be studied further.[11]

Most of the important variables such as education and income of the parents, behavior, smoking, air conditioning, lead in paint, soil, and house dust were all highly correlated. Thus, correlations, *t* tests, and chi-square tests, if taken out of context, would be misleading. Very small, but statistically significant, differences of a few percent of the variance contributing to BPb are not of any apparent clinical importance. We attempted to determine by step-wise regression of 22 variables the overall contribution of these variables to lead exposure. However, as some variables were added to the analyses, other variables dropped out, and variables that had previously dropped out were in the regression again. This suggested that some variables were proxies for other variables and did not represent a meaningful contribution to the overall exposure of small children.

Multiple regression modeling of the relationship between soil lead and blood lead permits statistical control of potential confounders. However, statistical adjustment for possible confounding may result in "over-control," incorrectly eliminating true effects of the adjusted variable. For instance, house dust lead is a composite of paint and soil lead. Statistical control of the relationship of soil and blood lead for the effect of confounding by house dust lead could result in overadjustment. Furthermore, the mechanism relating blood and soil lead to such potential confounders as education, income, cigarette smoking, air conditioning, and home ownership is not well understood. We have, therefore, taken a cautious approach to statistical adjustment for possible confounding.

Parental cigarette smoking was positively correlated with BPb in young children. Other authors have reported that environmental tobacco smoke may contribute to BPb.[12] However, cigarette smoking also correlated with other BPb predictors. Furthermore, the number of cigarettes smoked per day and the number of smokers per household did not correlate with lead in house dust. The lack of an association between cigarettes and lead in house dust has also been reported by Willers et al.[13,14] Cigarette smoking was most likely a proxy for other risk factors for lead exposure such as education and socioeconomic status.

In conclusion, indiscriminate removal of leaded paint and soil in residential areas may have little or no practical benefit. A more targeted approach in which the condition of the houses, socioeconomic, and behavioral variables are also considered should prove more useful and realistic. Education of parents about pathways of exposure, consistent and adequate removal of house dust (cleaning), personal hygiene and good nutrition are important additional measures to reduce lead exposure in children.[11]

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STATEMENT OF
TIMOTHY FIELDS, JR.
DEPUTY ASSISTANT ADMINISTRATOR
OFFICE OF SOLID WASTE AND EMERGENCY RESPONSE
U.S. ENVIRONMENTAL PROTECTION AGENCY
BEFORE THE
COMMITTEE ON COMMERCE
SUBCOMMITTEE ON COMMERCE, TRADE
AND HAZARDOUS MATERIALS
U.S. HOUSE OF REPRESENTATIVES

MAY 23, 1995

Introduction:

Mr. Chairman and Members of the Subcommittee, thank you for the opportunity to appear before you today to discuss the cleanup of National Priorities List (NPL) sites under the Comprehensive Environmental Response, Compensation, and Liability Act (Superfund). I will briefly discuss how Superfund cleanup decisions are made and the reforms supported by this Administration to improve the cleanup process.

The Remedy Selection Process

The remedy selection process is probably the most challenging job the EPA must perform under the Superfund program. The Agency must first perform the careful assessment of the nature and extent of the contamination, as well as, the current and potential risks posed to human health and the environment. After assessing the risks posed by the site, EPA determines whether cleanup is warranted and, if so, develops and evaluates alternative cleanup approaches to manage the risk. Finally, EPA must make a decision as to the approach for a given

site, balancing the concerns of the community, state and local governments, expenditure of public funds, and the limits of science and technology to correct past contamination. This process is described in the National Oil and Hazardous Substances Contingency Plan published in the Federal Register on March 8, 1990.

To speed the pace of the remedial process the Agency developed the Superfund Accelerated Cleanup Model (SACM) in 1992. While removal authorities have always been used to address the immediate public health threats at NPL sites, under this approach removal authorities are initiated more quickly, often before the remedial investigation has begun, providing immediate risk reduction and providing a basis for remedial actions which will address long-term risks. To date, we have initiated 1255 removal actions at NPL sites.

EPA is also conducting expanded site assessments early in the remedial process. This leads to a more efficient detailed site characterization, the remedial investigation/feasibility study (RI/FS). At this stage EPA assesses, through the baseline risk assessment, what contaminants are present, the magnitude and extent of the contamination, the current and potential risks to the surrounding community, human health and the environment, and evaluates the effectiveness of various cleanup methods for that particular site. In the remedial investigations (RI) stage, an evaluation of past activities at the site leads to sampling and laboratory analyses to determine the contaminants of concern and the extent to which the soil, air, surface water and groundwater and perhaps people, fish, food, or fodder are contaminated. The remedial investigation is the point at which the baseline risk

assessment is conducted for each NPL site. As described in the National Contingency Plan (NCP), the baseline risk assessment should "characterize the current and potential threats to human health and the environment that may be posed by contaminants migrating to groundwater or surface water, releasing to air, leaching through soil, remaining in the soil and bioaccumulating in the food chain."

Prior to 1990, Superfund risk assessments relied heavily on the "worst case scenario." This is no longer the case. We now use guidance for risk assessments that employs site-specific information on contaminant concentrations, exposure pathways and land use. The EPA's Science Advisory Board has critically reviewed this guidance and found it to be sound. This guidance makes today's Superfund risk assessments more realistic than those conducted earlier in the program. In addition to calculating central tendency determinations required in several of the pending risk assessment bills, EPA's current risk assessment process also considers other factors in order to protect most individuals near Superfund sites. Reliance solely on the central tendency or average exposures to set cleanup levels may underestimate risk for up to half of all exposed individuals.

The human health portion of Superfund risk assessment is conducted as outlined in EPA's *Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual Part A.*" Land use is taken into account to determine exposure pathways, and combined with site specific data on chemical concentrations to estimate human health exposures at a site. These exposure estimates are then combined with chemical toxicity data available from EPA's

Office of Research and Development to estimate site-specific cancer and non-cancer risks. Volume II of the *Risk Assessment Guidance for Superfund, Environmental Evaluation Manual* provides guidance for conducting the environmental portion of the baseline risk assessment.

The baseline risk assessment also helps establish preliminary cleanup goals for the site that are protective of human health and the environment. If cleanup is required, EPA then conducts a feasibility study (FS) in which several cleanup proposals are developed to attain the preliminary cleanup goals and a no action alternative is reviewed. Each alternative is then evaluated against nine criteria. These nine criteria, as described in the NCP, are presented in three categories -- threshold, balancing, and modifying. The two threshold criteria are: first, protection of public health and the environment; and, second, compliance with applicable or relevant and appropriate requirements (ARARs) of other federal and state laws which has led to requirements for more stringent cleanups at many sites. There are five balancing criteria which are weighed or balanced against one another and include long-term effectiveness and permanence; reduction in toxicity, mobility or volume achieved through treatment; short-term effectiveness; implementability; and, cost. The final two criteria are modifying criteria -- state acceptance and community acceptance.

After evaluating the alternative cleanup approaches using these nine criteria, the Agency finally solicits public comment on a proposed plan. The proposed remedy must fulfill the statutory requirements to protect human health and the

environment, comply with ARARs (or invoke a waiver), be cost-effective and utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. Upon full consideration and response to all public comments, the Agency issues its cleanup decision in a Record of Decision (ROD). Where the preference to use treatment as a principle element has not been met, the reasons must be explained. EPA expects, and review of RODs to date shows, that we will treat at some sites, manage wastes at some sites, and at many sites we do both. EPA has signed over 1500 Records of Decision establishing the cleanup levels and technologies necessary to protect public health and the environment. All cleanup construction has been completed at 292 NPL sites and partial cleanups have been completed at an additional 489 sites.

Improvements to the Remedy Selection Process

Critics of the Superfund cleanup process have claimed that Superfund sites pose an insignificant human health risk, the cost of cleanup is too expensive, and the pace of cleanup is too slow.

As stated by Administrator Browner before this Subcommittee on March 16th and as you will hear from Dr. Barry Johnson from ATSDR, Superfund sites do pose significant risk to public health and the environment. Recent analysis of risk data from a sample of about 200 Superfund sites shows that risk levels at more than 80 percent of the sites exceeded either an individual cancer risk level of 1 in 10,000 or a noncancer hazard index value greater than 1. While potential future

risks are generally higher than current risks, this data shows that about one third of the sites have a current risk of at least 10^{-4} or a hazard index of 1. The methods of determining these risk levels are not worst case but reasonable estimates of those individuals that are likely to have the highest exposures. This information supports the need for action to protect the public from risks at Superfund sites.

One example of our efforts to improve the assessment of health and environmental hazards was to revise the Hazard Ranking System, which is used to help screen sites for inclusion on the NPL. The revised HRS places an emphasis on sites with actual exposure to humans and sensitive environments. Of the sites that have been proposed for addition to the National Priorities List (NPL) using the revised Hazard Ranking System (since 1991), 80 percent show that there is past or current exposure to either humans or sensitive environments. We believe that these changes help to better identify those sites posing the greatest risks to health and the environment.

As the Administration recently reported to you, this year the Agency has launched a series of administrative reforms to improve the Superfund program. Some of these reforms are designed to make the cleanup process, including remedy selection, more efficient. Many of the legislative reforms offered by the Administration last year also address these concerns. However, we urge Congress to make the changes in the law that the reauthorization stakeholders coalition and this subcommittee developed last year.

The Administration supports consideration of reasonably anticipated future land uses early in the Remedial Investigation/Feasibility Study (RI/FS) process and before cleanup decisions are made to help determine the appropriate level of cleanup. The Agency, as a matter of policy, considers future land use under the present remedy selection process. However, it supports a statutory requirement for early consideration of reasonably anticipated future land use to guide development of appropriate cleanup levels and remedy alternatives. Critical to this consideration, however, should be the early consultation and involvement of local communities,especially those residents living closest to the site.

The Administration supports clarifying the cleanup objectives for Superfund by requiring the establishment of national goals for the protection of human health and the environment. These goals would include a single numeric level for carcinogens, a single numeric level for non-carcinogens and a narrative goal for environmental risks. The purpose of the national goals was to promote consistent and equivalent protection of human health and the environment from the risks posed by Superfund sites in terms that can be more clearly understood by the public. The goals would be considered at all sites and met, unless achievement would be technically infeasible or unreasonably costly.

We support the establishment of a national Superfund risk protocol to govern the development and use of risk assessments in the Superfund program. The protocol would have governed baseline risk assessments which determine whether cleanup is needed, and help develop cleanup levels, and the analysis of risks that

may be posed by implementation of a particular cleanup alternative. The National Risk Protocol would promote realistic estimates that neither minimize nor exaggerate the risks posed by a Superfund site. The risk protocol used in conjunction with the national goals was intended to create greater consistency and clarity in the ways risks are estimated and to provide greater understanding of how they are used to ensure protection.

We also sought reform of the remedy selection process through elimination of the mandate for permanent solutions, narrowing the preference for treatment to "hot spots" within a site, providing for greater consideration of cost in cleanup decision making, and eliminating the requirement to attain relevant and appropriate requirements of other laws. Based on last year's data, we estimated that these reforms would have resulted in cleanup costs savings of 19% to 25%, and saved private parties nearly $400 million a year.

The elimination of the statutory mandate for permanent solutions should be replaced with a requirement to address long-term reliability. This would provide EPA with the impetus to select durable remedies, but enables the consideration of other factors such as community acceptance of the remedy, the reasonableness of its cost, and the availability of other treatment technologies. The current statutory preference for treatment should be limited to "hot spots". This would avoid costly treatment of large volumes of low level contamination and ensure that the most contaminated areas at sites and other areas where contamination could not be contained safely would receive treatment.

The appropriate remedy, under this new approach, would be determined on a site-specific basis by applying five remedy selection criteria. An appropriate remedy that is protective of human health and the environment would be determined by considering the remedy's effectiveness; its long-term reliability; the risk posed by the remedy to the community, cleanup workers, and the environment; the acceptability of the remedy to the affected community; and, the reasonableness of cost in relation to the other factors just mentioned.

This restructured criteria for remedy selection will streamline the decision making process, provide elevated consideration of cost, and increase the role of the local community. As a result, cost would be placed on an equal footing with effectiveness, community acceptance, long-term reliability and short-term implementation concerns. Under these reforms, both cost and community acceptance would have a greater role in remedy selection than they do under current law.

The Administration continues to support the goal of protecting the nation's valuable groundwater resources from contamination from Superfund sites. Currently, one out of two citizens get their drinking water from groundwater aquifers. The concerns expressed regarding groundwater restoration center on the difficulty in achieving cleanup and the cost of that cleanup. The reforms we support would have addressed these concerns.

When developing ground water remedies, cost would have been considered in several ways: First, cost is a factor in determining whether it is impracticable to

remediate; second, unreasonable cost is a reason to achieve a lesser level of cleanup where concentrations are low; and finally, reasonableness of cost is a specific factor to be considered in remedy selection.

While continuing to strive for restoration of contaminated groundwater to its beneficial use where technologically feasible, we have established policy and would support statutory revisions that consider the difficulties of achieving complete cleanup of contaminants such as Dense Non-Aqueous Phase Liquids (DNAPLs). In addition, the Administration supported, last year, consideration of the time frame in which groundwater would likely be used for drinking water development and designed the cleanup accordingly. This approach also acknowledged the use of containment and natural attenuation where appropriate.

We support the goal of returning contaminated ground waters to their beneficial use and avoid passing on a legacy of hazardous waste contamination to future generations. If we were to focus only on containment, we must also factor in the costs of maintaining these systems. Another consideration is a recognition that much of the hazardous waste contamination to ground water is unlikely to attenuate over time. We also want to continue to encourage development of innovative cleanup technologies to address this contamination. And, without restoration of ground water where it is technically feasible, we run the risk of seriously limiting economic development in the West and economic redevelopment of many communities across the U.S.

Finally, the statutory requirement that remedies attain "applicable or relevant and appropriate requirements" (ARARs) should be modified. The "relevant and appropriate" element in the requirement should be eliminated and only those standards directly applicable to cleanups should be used at sites. At present, ARARs are often found to increase the cost of cleanup, create additional delay and require compliance with laws that have little to do with the level of cleanup required. Thus, this reform would result in the elimination of the many additional conditions on Superfund remedies presently imposed that drive up the cost of cleanup.

Other Issues

Many of the same concerns with the cost and speed of Superfund cleanup that led to the Superfund Reform Act are being addressed by Congress in unrelated legislation that may lead to undesirable consequences. Specifically, H.R. 1022, the "Risk Assessment and Cost-Benefit Act of 1995," requires the selection of the least-cost remedy for cleanup actions based on an incremental cost benefit test. While it is important to elevate the role of cost in remedy selection, under the provisions of H.R. 1022, incremental cost-benefit analysis becomes the primary remedy selection criterion, potentially superseding other remedy selection criteria including the protection of human health or the environment, or the preferences of affected citizens. This bill appears to preempt state requirements, even those directly applicable to cleanup of hazardous waste sites, unless they meet the

incremental cost-benefit standard. As a result, effective remedies which protect human health and the environment and are acceptable to the community could be rejected in favor of remedies that leave significant portions of the population unprotected, that are unacceptable to communities adjacent to Superfund sites, that allow the spread of contaminated ground water, and that leave contaminated sites as a blight on communities for the future.

We are also aware that the Committee is interested in making sure that radioactively contaminated sites are addressed appropriately by the Agency. I would like to assure you that the Office of Solid Waste and Emergency Response is working closely with the Office of Radiation and Indoor Air to develop an overall regulatory approach to address the risk to people and the environment from these sites.

Finally, EPA recently received a March 30 request from this Committee on lead issues. You have our responses to these questions. However, I would like to take this opportunity to highlight a few key points.

EPA's approach to addressing soil lead contamination at Superfund sites is described in an OSWER Directive issued on July 14, 1994 (Revised Interim Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities). This Directive promotes the use of better science as well as increased consistency in EPA's assessment and management of lead risks. It recommends a risk-based screening level of 400 ppm for lead in soil for residential land use, describes how to develop site-specific preliminary remediation goals or media cleanup standards at

Superfund and RCRA sites, and describes a plan for soil lead cleanup at Superfund and RCRA sites that have multiple sources of lead. It recommends the use of the Integrated Exposure Uptake Biokinetic (IEUBK) Model to evaluate potential risks to children from environmental exposures to lead at hazardous waste sites in residential settings.

The IEUBK model is designed to consider site-specific information in estimating the overall exposure of children to various environmental sources of lead. By identifying the range and magnitude of lead sources at a given site, risk managers are better able to determine which source or exposure control actions might address the greatest lead risks. The model was developed in a cross-Agency effort to build the best available information on the effects of lead in humans into a state-of-the-art risk assessment tool. The EPA's Science Advisory Board in an early review of this tool stated that the model "represents an important advance in assessing biologic response to and potential health risks from environmental contaminants" and encouraged the Agency to consider development of similar tools for other contaminants. As a result of comment by the Science Advisory Board and others, EPA is working to validate the IEUPK model and to have the results peer reviewed.

Some have argued that the Agency should base its decisions about the need for cleanup on blood lead data. The Directive recommends the use of all available data, including blood lead data, in assessing lead-related risks. However, the Science Advisory Board cautions that blood lead data must be evaluated carefully.

Among other factors, for example, small sample size and seasonal or other temporary variations in the behavior of children can affect measured blood leads in site residents. By the time lead shows up in blood analysis, harm to children may have already occurred. We support the Science Advisory Board recommendation that blood lead levels should NOT be used alone to estimate site risks.

Some critics have argued that mining site soils represent a lesser threat than soils from other types of sites because of their low "bioavailability." This "bioavailability" can depend both on soil particle size and the solubility of the lead species present. The Agency agrees that soil lead bioavailability is an important consideration in evaluating lead risks. However, most sites are not easily divided into groups of high or low bioavailability. For example, many mining sites have experienced other types of milling or smelting activities that could greatly influence the soil types and thus the bioavailability of soil or housedust in a community. However, in some cases, site-specific bioavailability studies may be desirable, if for example potential cleanup costs are estimated to be large.

Your recent request of EPA for information on lead issues also implies a concern that EPA has not been forthcoming in sharing the results of the "Three City Lead Study," a group of three studies conducted to evaluate the impact of soil lead abatement on blood lead levels in children in urban environments. In fact, the results of this study have been discussed in several peer review meetings that were open to the public and in final reports that are available to the public. Reports of the individual cities underwent expert peer review, and the results of the three

cities combined were discussed in a draft EPA Integrated Report that was peer reviewed in a public workshop in August, 1993. In response to additional requests for analyses by peer reviewers, the Agency's Office of Research and Development (ORD) is currently conducting further analyses which it expects to complete in August, 1995. The final report will be published after completion of the peer review process. We are working to condense the schedule as much as possible while including the necessary peer review steps. If the peer review results in no additional need for analyses, the report will be released in final form in January, 1996. At about the same time, the Agency plans to release the broader database associated with the study so that others can conduct their own analyses. Preliminary findings indicate that: (a) interrupting the pathways by which children are exposed to lead-laden dusts reduces blood lead levels; (b) abatement of soil in areas of initially high soil lead levels does, in fact, reduce blood lead levels; and (c) abatement of soil lead where levels were initially near the OSWER soil screening level may have little impact on blood lead levels.

Conclusion

In conclusion, Mr. Chairman, reforms to the remedy selection process, as I have just outlined, would greatly enhance Superfund cleanups at significant cost savings to both the public and the private sectors. These reforms were supported by a broad range of stakeholders last year and represent a substantial restructuring of the Superfund cleanup process. We are eager to work with this committee to

craft legislative solutions to many of the flaws we have identified within the statute itself. The development of national goals and the establishment of a national risk protocol, the elimination of costly provisions for permanent solutions and requirements for compliance with non-cleanup related provisions of other laws, and efforts to reduce costs in the program while increasing the opportunity for community involvement suggest ways to provide the American people with a Superfund program that is efficient and that effectively protects our nation's health and the environment.

Thank you for the opportunity to address this Subcommittee. I will be pleased to answer any questions that you might have.